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# INDEX TO VOLUME 69

JANUARY TO JUNE, 1936

This is an alphabetical index of articles and discussions arranged by leading words. It contains occasional cross references. Names of authors and men who discussed the papers are also included. Details of society proceedings, including the titles of papers read,

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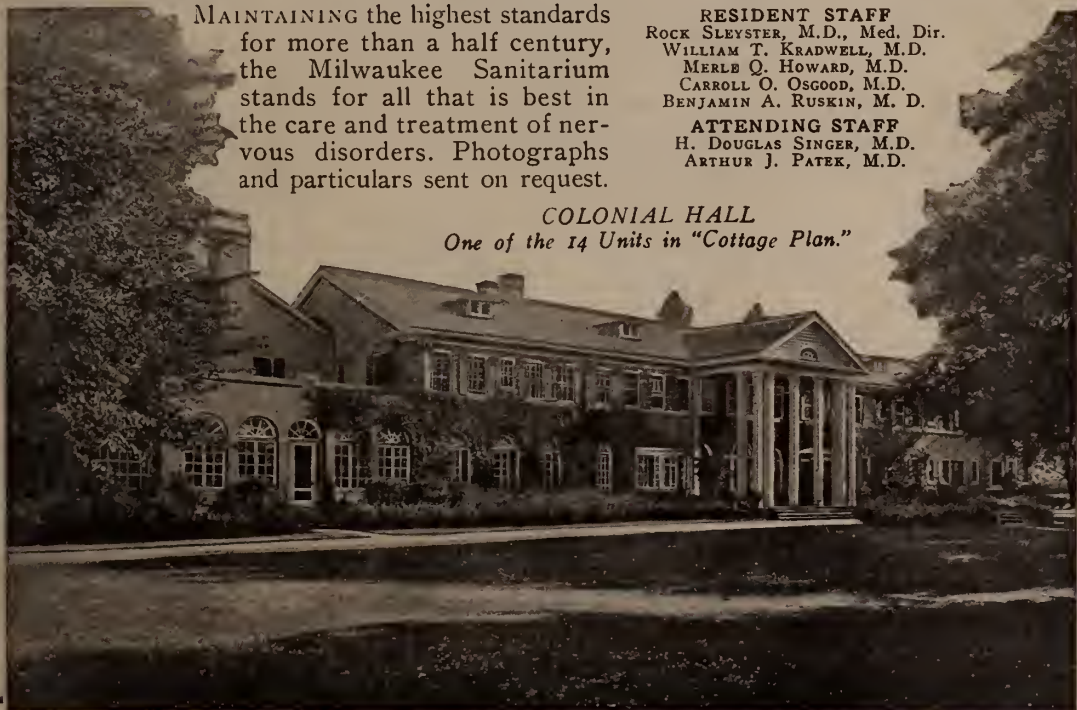
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Smith: *The British Medical Journal*, 1935, No. 3890, p. 154-159.

Craig: *The British Medical Journal*, 1935, No. 3896, p. 478.

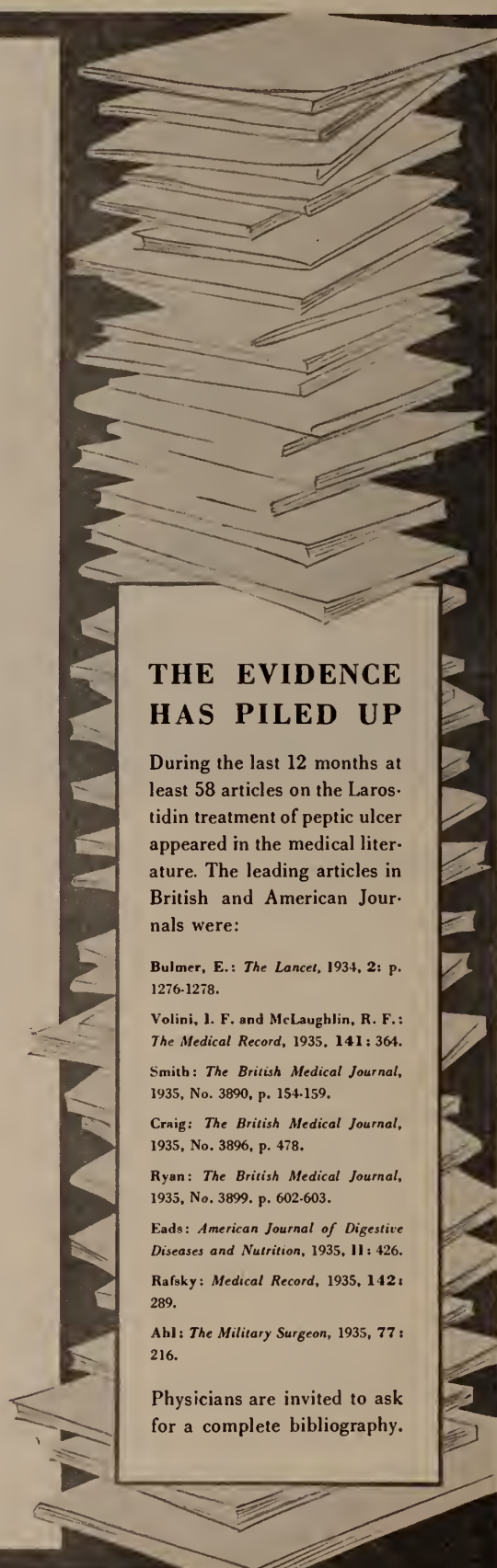
Ryan: *The British Medical Journal*, 1935, No. 3899, p. 602-603.

Eads: *American Journal of Digestive Diseases and Nutrition*, 1935, 11: 426.

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1. Jour. of Biological Chemistry, Vol. 104. No. 2, Feb., 1934.
2. Biochemical Journ., Vol. xxix, No. 2, Feb., 1935.
3. Journ. of Morphology., Vol. 56, No. 2, Sept., 1934.
4. Memoirs Univ. Calif., Vol. 8, 1927.
5. Proc. Nat. Acad. Sci., Vol. 2, p. 377, 1925.
6. J. Exp. Zool., Vol. 45, p. 159, 1926.
7. J. Nutrition, Vol. 1, p. 311, 1929.
8. Am. J. Anat., Vol. 52, p. 153, 1933.
9. Endokrinologie, Bd. 7, S. 91, 1930.
10. Am. J. Anat., Vol. 52, p. 153, 1933.

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## Editorial

### HAPPY NEW YEAR!

Life, they say, is what we make it. Since life is built up of years, then by deduction the years, too, will be pleasant or fortuitous, compensative, enriching, destructive or unhappy, just as we make them.

So to *wish* any one a "Happy New Year" at best can serve only as a reminder that we must *grow* happiness and prosperity with the care and the patience and the backbreaking labor attending cultivation of the fields. It is a necessitous husbandry of the individual's attitude and effort.

In the heart of many a patient, persevering, self-sacrificing competent physician the country over, this crop of happiness has gone sour in the last decade. Such a man is among those who ploughed under his service crops and found no government check waiting for him, but rather *another tax* to make such compensatory payment to other men, hitched to a prospect of further "ploughing under" by the socialistic schemes planned to put medicine under law control, and to take it away from professional guidance. Or to be more exact, to divest medicine of all scientific authority and to leave it the labor and the loss.

Hundreds of hardworking medical men of mature age, and that same maturity's accompanying, invaluable experience and perfected technique have been caught in the tendency by the general public and by legislative bodies to

*"Ring out wild bells to the wild sky*

*Ring out the old, ring in the new!"*

These men have confronted bills unpaid for services rendered; practice disorganized by the cataclysm of lay socialistic schemes estimated to deliver medicine into the hands of big business coupled for the nonce with masked communism, and only too often speaking through the mouthpieces of endowed foundations and socialistic legislation; steadily increasing taxes and a general "black eye" from misguided philanthropists both INSIDE the profession and without.

Such ingratitude on the part of a public served

unselfishly and with more generosity than can be found in any other line of service, save perhaps in those of missionaries of the churches tends to make a man of medicine feel himself akin to *King Lear*, and to merit pardon if he cry aloud,

*"O sharper than a serpent's tooth, 'Tis to have a thankless public."*

For such men the year 1936 brings at the outset at least a gleam of light upon the distant horizon. Awakening of the profession to the menace at the throat of medicine, is doubly as widespread as was such consciousness a year ago. With public policy subjected to the acid test of the approaching quadrennial general elections for the highest offices in the United States, the year 1936 places in the hands of every physician in the United States the most powerful weapon in the land,—*the ballot*. And in this hour no doctor dare let this weapon rust in its scabbard.

Politics is running the medical profession into the ground. Becoming Hahnemannic, and "fighting fire with fire," the doctors of the land can clean up the situation in what is practically the twinkling of an eye, if in union and steel-clad organization, they will fight politics with politics, by exercising democracy's greatest gift, the right to vote, following sage selection of candidates.

If every physician in the land will pledge himself to work even one tenth as hard to save the rights of medicine in the United States as that same physician works to save the life a malingering habituated-to-charity-service-patient, even those among the politicians who are medicine's worst enemies, then indeed is the battle won.

But there can be no dug-out fighting any place along the line. The coming campaign is all a matter of hand-to-hand combat in the front line trenches. To get this "Happy New Year" of 1936 and a few more after it, the physician, no matter how infinitesimally politically minded he may be, nor how deep in research, nor how engulfed in surgery, obstetrics or plain-old-fashion-run-of-the-mill procure can waste a single day in getting this matter in hand. Research for a while, doctor, as to the qualities of the man who will sit in the city council, the state legislature, the congress of the United States or rule in the White House! "*Know thyself!*" Yes, and *know the other fellow* who is going to be your duly elected representative in compiling the code of existence for residents for your community;

in levying the taxes that you will have to pay, in deciding how those taxes that you must pay will be spent, whether with frugal foresight or with everlasting extravagance. This, my dear doctor, is *your own personal affair*, just exactly as much as is the state of your teeth, or of your digestive apparatus, or the amount of gas in the tank before you climb into your flivver for a long cross country run to care for a confinement case.

At the end of the day of date December 29, 1934, experts estimated that so far for during the current fiscal year the expenditures of the government had averaged \$20,512,232 *each day*. All the money that the government has comes from its taxes,—from out of the pockets of its citizenry. That means *your pocket and mine*, and that of *our neighbors*. It is held too, that this amount shows an *increase in daily expenditure* over the previous year of \$1,225,115 *each day*.

All this, too, before assessments have been made for the new so-called "Social Security Act" which has been called in no uncertain terms the "largest tax bill to come out of Congress" and "of of doubtful constitutionality" and "of questionable social and economic wisdom." Almost five times the value of all the gold reserves of the world's central banks and governments would be needed to equal the gigantic reserves of some \$50,000,000,000.00 which will be required by 1980 to meet the demands of this act.

To a man up a tree the whole scheme looks a lot like feeding a hen copious Vitamin E in the hope of getting her to lay three eggs a day. It has never been proven that with any this could be accomplished. Nor has it ever been estimated that a man can pay out in taxes more than he earns and at the time support himself. No matter how high-minded the intent of much of the legislation that is upon the statute books to-day, and much of it legislation so new that the sawdust of its hewing still bespatters the timber, the results can not be more than surfacely palliative and certainly not panaceal. Very few physicians if put to the query would have voted "yes" for those interfering laws and false doctrines. The greatest hope for the medical profession,—the only hope in fact—and the greatest hope for the general public, is a little *medical interference in politics* and in and around the *business affairs of the laity* and a *great deal less law and political interference in and about medical affairs*.

Admitted that "hope is faith in the evidence



of things unseen," still faith and hope have long been in every doctor's medicine chest as well as in his change-pockets, and no doctor will scoff at their promises. A very tangible promise and the fulfillment of many hopes lie potently in the doctor's vote, not only at the coming general elections but at the caucuses, the primaries and even the isolated ward meetings. Further, the doctors want to begin to talk politics and to live a little politics on the way.

That many physicians are becoming politically minded is a gay glint in the midst of the clouds of depression and war that surround us.

For threats of war hang over the head of civilization as a heavy sword of Damocles. The world is worn with trouble. And a great many doctors are worn with the world. It would seem however that in the United States, once we can stop this orgy of idiotic legislation and tax assessments that would have brought a blush to the cheeks of the extravagant Catherine the Great of Russia, that we are approaching the top of the hill. For the eyes of the medical profession are opening fast to the maneuvers of the communists and to the misguided ignorant law experiments with medicine and all its works.

It begins to look, too, as if a saner attitude would be taken during 1936 by medicine itself towards its own troubles, and complications.

Now that a slow realization and more careful analysis of the elements of cost in medical care removes from the medical profession the stigma of undue expense, and places this item where it belongs, at the door of the nurse, and the hospital, and only too frequently to the luxurious ideas of the patient and other general overhead, 1936 would seem to hold still another hope for the doctor. As it is now the doctor is lucky if he gets \$100 out of every \$600 spent in a case of ordinary hospitalized illness, and that only at painful and tedious long last.

Now that some of the younger men in the profession feel the pinch of competing with their various *almae matres* in graduate practice of medicine, a new spirit of resentment is springing up against corporations practicing medicine and endowed foundations of lay persons entering into the medical purlieus. This has always been a false hypothesis on the part of foundations and philanthropists.

Now that the echoes of what "state medicine" has done to the practice and the progress of

medicine abroad come seeping with more lucidity in the United States, there is rising a demand from many sections to inform the *laity* more clearly as to what state medicine is, what it does and what it does not do; and further that state medicine is *not a gift* and never can be. There is no Santa Claus in state medicine, unless it be the ever overworked, underpaid and in such harness the diminishingly competent "panel doctor."

Once an ailment is diagnosed, American physicians can usually be depended upon to find a cure. These economic ills are not obscure even though they lie concealed by bales of fustian. Now that the medical eye has glimpsed them, if medical action shall follow there can not help but ensue for every physician and surgeon in the country a happy new year in 1936. To aid that medical action on its way, stand waiting neighborhood, community, city, county, state and national medical organizations. Join the band, doctor, lend a hand and achieve for yourself and others a prosperous, useful scientific life, as well as a highly happy new year.

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### WHY FIT DEMOCRATIC UNITED STATES WITH MONARCHIAL EUROPE'S SHOES?

Bending United States needs to analogous requirements of Europe is much like wearing the right shoe upon the left foot. This lusty young democracy has never offered life parallel to that of doddering lands across the sea.

Yet because Europe patches the holes in its economic pants with all sorts of shifts and makeshifts such as "health insurance," "panel practice" and "state medicine," why should this alert, well-fed and well clothed nation tear itself to pieces for the sake of wearing patches?

A sane man is at a loss to find a rational reason. Yet from Alaska to Florida, from Maine to Tia Juana, from Vancouver to the Gulf of Mexico, from the Great Lakes to the Mississippi bayous, this, our native land is riddled and raddled with propagandists who shout from the housetops that our land; our public health; our government; our treasuries, national commonweal, municipal and individual, will be chewed up by theorists and lost in an economic hell-fire unless poor old Europe's tonics, sedatives, general repairs, props and bolsters-up are imme-

diately grafted upon the Spirit of 1776 and the Constitution of the United States.

The propagandists of course are thinking of their own pockets and their own power. The American citizen is too busy earning a living and too busy caring for his family to have much time to waste upon propaganda.

In these, our days of depression, if not of despair, the American citizen besides attending to his own dependents is trying to share the little he has with the fellow worse off than himself. This would seem to be the principle of fraternity, rather than the general destruction of everything so that everybody shall have nothing. However—Europhobians say that this is all wrong. America must scuttle the ship that has carried her into the forefront of nations in less than two centuries. All her log as a country is wrong. She must eschew it and pattern herself after Europe—a country almost eight centuries her senior. And the best way to start the job is to sink the profession of medicine, so far as America is concerned, to the deepest bottom of the bluest sea and the rankest depth of some wild morass.

One of the most popular battlecries of the Europhobians is "Down with the high cost of medical care!"

Laying down the slogan for a moment, take a glimpse of the "high cost of medical care."

For the rank and file of the 150,000 physicians laboring throughout the United States let it be set forth that the average annual compensation of these men in 1929 before the recent depression was \$3,705 per annum. Some 24% had a net income of \$2,000. Twenty-eight per cent had a net income of less than \$4,000, and 75% had a net income of \$7,000 or less.

With these figures in mind, what then, makes up the "high cost of medical care?"

The physician's bill is the last fee to be paid out of the household budget. In any case of emergency, maternity, operative or critical illness, the hospital bill is paid long before that of the doctor. Yes, "the hospital must live." But it is a fact that the modern hospital in far too many instances takes on all the atmosphere and aroma of a resort hotel. Comfort and care have become confounded. Luxury supersedes necessity. Long and expensive training of nurses, of dieticians and of administrative staffs takes toll. For a seriously sick man or woman

or child, let it be granted that nothing this side of heaven is too fine, or too good to aid in recovery of life's richest asset, health.

Even so, there is a care commensurate with skill and perfection that does not need all the elaborate environment involved in much modern hospitalization. An infant prince may wear handwrought platinum pins to fasten his first diapers. But do these fastenings, these miracles of the jeweler's craft, function with any more efficiency than a standard steel clasp pin purchased for a dime a dozen?

What honest man or woman can make but one reply to that query?

To a certain degree that comparison is true of much of the high cost of modern hospitalization and to the so-called "high cost of medical care."

The modern hospital did not go grandiose on its own. Actually it was seduced. Much of its efficiency came from endowment, either by individual bequest or foundation intervention. So long as such aid stopped there, the idea was excellent. But when extravagance complemented efficiency the result begot chaos. Much of the intensified cost of illness, and of the expense of taking care of the sick comes from increased hospital overhead.

"The high cost of medical care" is as inept a title for the current crisis in medical and disability economics as the traditional title of "plum pudding" for a confection entirely devoid of plums. The medical care is a mere bagatelle in comparison with other costs in times of illness. Take for example a maternity case. No other type of illness has been bruited about more at the hands of propagandists than have maternity cases. Although obstetrics nowhere in the world receive the attention given in the United States; although nowhere else is the pre-natal, in fact the entire life standard of living as refined as in the United States, even under the worst of circumstances and taken class for class, maternity practice in the United States has been held up to ridicule by the socializers of the world. There is no statistical standard of measurement, no international yardstick for values that can accurately afford proper comparative figures for national maternal mortality. Yet propagandists knowing this quite well are only too ready to roar that "the United States annually kills more mothers by neglect than any



other nation in the world." On the face of things this is false. We live better here in America than citizens of any other country. Had we fewer laws, fewer politicians and more patriotism per capita we would be better off than we are, but as it is, we are probably better off in every way than is any other nation in the world. However, with this "maternal mortality" hysteria the United States was handicapped for three years with the odious "Sheppard-Towner Maternity Bill" which did not provide a single cent's worth of food, shelter, care or clothing for any mother, but did give a whopping number of politicians pretty fat jobs. It also managed to make a lot of trouble for organized medicine and to weaken our national defenses for the advent of socialized medicine. Nor is the Sheppard-Towner bill a dead issue. Its ghost is still strolling around the halls of government, and trying its best to add a little more to the "high cost of medical care." Law and the laity would practice medicine.

Now the cost of medical care, when you get right down to it, is *the cost of the doctor for skilled medical and surgical care in illness*. Accurately analyzed this is but from five to fifty per cent of the cost of any illness. *Nobody yet has taken a slap at the high cost of the butcher, or the dairyman or the laundryman or the green grocer during illness.*

Yet, if at the doctor, why not at the business man? Or the landlord? Or the coalmen? For each and all of these entities in civilized society contributes not to *"the high cost of medical care"* but to the *"high cost of illness."*

And each and every one of them if the patient is sick in the home, *gets his bill paid before the doctor does. Even the nurse comes first!*

Now as a rule, a hospital has several main sources of expense. These do not vary whether the institution is supported by the taxpayers or by the private citizens of a community, or the medical profession, or by religious orders, or by endowment.

A hospital must meet its maintenance bills. These for an institution are the same as for a householder or any individual. Which means that the overhead includes, rent, if the property is not owned, and if it is owned, taxes, and repairs; heat, telephone and water bills, light and labor for attending to the mechanics of running the building alone. Added to this must come the support for the training of the nursing quo-

tient—laundry, housing, food and a variable though ever minimum compensation during training and the maintenance of the staff, administrative and servile that actually labor for that section of the hospital that does hotel duty for the sick. All these costs must be met, these routine costs of living before a single penny is expended for the patient. As for the patient, there must be food for the patient, therapeutic and surgical supplies and the same upkeep that would be given were the patient out and able.

*There is no more exactness in charging all these expenses to "the high cost of medical care" than there would be to charge the family butcher with the maintenance of the Normandie. These expenses are not medical care. These expenses are maintenance care of the patient, and if anybody should be grilled it is not the physician, nor the surgeon, but the very business men who make their profits from hospitals and who are trying to socialize medicine and surgeon's skill! Think it over!*

Another item in the cost of illness—why equivocate and call it the "high cost of medical care?"—is the indubitable high cost of nursing attendance. The race for efficiency has brought about an over trained nursing profession, that is neither, in the bulk, a group of medical men, nor yet an acceptable assisting factor in the home of the bulk of the citizenry.

For special cases, or a very small percentage of the nation's invalids, the expert, extra-trained nurse may be a necessity. But she is not needed in the average case of measles! mumps; the normal, routine confinement of a healthy strong young mother; nor the incidental care of the senile nor the average convalescence from uncomplicated accident or attacks of illness. However, there is no choice. The average family cannot pay the wages of the registered nurse. She is a burden outside of her wage for the nurse who is over-trained has grown to be quite a lady of quality and will not share in the duties of the home nor its economies. She is an aloof individual, ranking as high as the doctor and will have no quibbling about it. Frequently her wage is the equivalent of the entire income of the wage earner, and—there you are!

This however is the "high cost of nursing." It is NOT the "high cost of medical care."

The foundations made their first play for control of medicine, and the socialists and com-

munists their initial movement to this end by "nursing aid associations." The part-pay or semi-endowed nurse vies today with the public health department visiting nurse. There are other subsidized attempts to solve the problems of the nursing profession by the lay public. They have not been successful. The plight of the trained and registered nurse in these years of depression has not been enviable.

Is there any likelihood that when this subsidization wreaks its havoc upon the medical profession that the results will be any more effective or any more of a panacea than they have been with the nurses? Will public health, insurance, sickness insurance or any other of the claptrap of socialization work any better there than these attempts to cheat the nurse of her wage by having somebody else pay half of the patient's bill?

That is one of the fundamental differences between the United States and Europe. The United States was started by persons who wanted to stand on their own feet, to support themselves, to give themselves a chance. Europe has always been a land where a ruling class batted on the taxes and the earnings of a poor and servile class, and as a consequence had to subsidize the servile class when it became indigent. The United States was a new idea.

It is a democracy that started clean from scratch. Europe could not do that, with the best intentions in the world. The best that she can do is to put a few shining, incongruous patches on the worn out jeans, something that will smack of democracy and freedom and equal rights and equal opportunities. So out of theories and visions was plucked the idea of social and health insurance, baiting the underprivileged with the greatest prize life can offer—health.

To date the scheme hasn't worked. The goose that laid the golden egg was killed. For medicine in Europe has not maintained the world lead. The practice of medicine is a profession under a pall, and the cost to every one, from the minimized income of the doctor to the increased burden on everyone is appalling.

Writes Dr. Edward H. Ochsner in his "Social Insurance and Economic Security":

"The wage earners of Germany and Austria lose more time through sickness under Compulsory Health Insurance Laws than in the United

States without such laws but it also is interesting to note that it has produced in the habits of German and Austrian workers, a tendency to become sick, to imagine they are sick or to make believe they are sick. . . . In France there has also been a great increase in the demands for hospital beds since the introduction of Compulsory Health Insurance. . . . People argue that they should not even take care of their own minor ailments when the state is willing to do it for them."

The state! The state! Where does the state get its income except from the taxes inflicted upon its citizens?

As to the backfire note this comment published in the *Journal of the American Medical Association* under date of August 31, 1935, from the Paris correspondent of that magazine, official organ of ethical medicine in the United States; and in which the scribe states:

"Paris, France, July 19, 1935.

#### DISCONTENTMENT OVER SOCIAL INSURANCE DEFICITS

"The social insurance law is now five years old, but from all sides come complaints that it has not proved to be the success that was expected. In attempting to balance its budget, the government has planned to save 400 million francs (about 25 million dollars) annually through economies in the administration of the law. One of the members of the chamber of deputies has asked for an emergency revision of the law because the premiums that insured workers are obliged to pay are a burden hard to bear. More than four billion francs (about 250 million dollars) is taken 'out of the pockets of employers and employees every year and most of it is stowed away (thesaurized) in the sinking funds of the various organisms of the law,' according to this legislator. The premiums must be reduced in line with a general effort to lower the cost of living in France.

"Finally, in the *Siècle médical* of recent date appears an article entitled, 'a decisive change,' which states that one of the chief objectives of the social insurance law, an effort to prevent disease by better sanitary organization of the country, is at last in the first stages of fulfillment. One is also much concerned about deficits in the budgets of the primary distributing agencies, or 'caisses,' of the social insur-



ance law. These collect the premiums from the employers and employees and disburse benefits for illness, maternity cases and deaths. These 'caisses primaries' insure themselves in a sort of central government agency termed the 'Union of reassurance.'

"At a recent meeting of all of these reinsurance societies it was found that the 'caisses primaries' were in a bad way financially and that surely next year, if not already this year, there would be deficits.

"These 'caisses primaries' during 1930-1931 distributed only 40 per cent of their income, whereas in 1934 the proportion rose to 89.5 per cent. The average premium dropped from 70 francs (\$3.75) a month in 1930-1931 to 63.7 francs in 1934, or about 10 per cent. This drop in revenue is more marked in the departments outside Paris than in the latter city. The reverse is true of the disbursements.

"Out of 103 of the 'caisses primaries' (primary collecting and distributing agencies) insuring 1,220,000 workers, thirty-nine are in deficit for sickness insurance, seventeen for maternity insurance and nineteen for death benefits. These financial difficulties will be combated in the future by the Reassurance Union lending money on more liberal and longer terms to the caisses primaries. As stated in previous letters, one of the drawbacks to the present social insurance law is the thesaurization, i. e., keeping out of circulation, vast sums of money by the central organizations which are constituted by the 'Union of Reassurance' and by the 'guaranty fund.' The former is the custodian of sickness, maternity and death insurance premiums and the latter for old age insurance premiums.

"These huge sums of money under the control of these 'higher-ups' links in the social insurance chain are not always wisely invested and there has been much open criticism of this feature of the law. The latter dates only from 1930 and it will be many years before those who are now paying for old age insurance will reach the age of 65 and demand reimbursement for sums paid in many cases over a period of from thirty to forty years. No secret is made of the criticism of the poor investments, entailing much loss of money, which have been made by the trustees of some of these funds.

"The experiment in social insurance in France

has been far less successful than was hoped or promised. The attitude of the medical profession is becoming more and more bitter in these days of crisis."

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## PAPERS FOR SPECIAL MEETINGS AT 1936 ANNUAL MEETING

In addition to the regular scientific sections at the annual meeting to be held in Springfield next May, the Pediatricians and the Obstetricians and Gynecologists will arrange their own special programs to be presented on Tuesday Morning, May 19, the first day of the annual meeting.

Although these programs will be arranged by members of these specialties and be in charge of their own officers, all members of the Illinois State Medical Society are cordially invited to attend the meetings and participate in the deliberations.

The officers of these groups are anxious to hear from any member of the Society desiring to present papers at either of these meetings, at the earliest possible moment. According to the usual custom, members living in Cook County should get in touch with the Chicago member of the officers and the downstate physicians should contact the downstate official.

In writing to these officers the title of the paper should be given and a short abstract of the paper should be submitted to better enable those responsible for preparing the programs to select those papers which in their opinion will be of greatest interest to the membership as a whole.

The officers for these special meetings are:  
Pediatricians meeting.

John R. Vonachen, Chairman, 901 Hamilton Blvd., Peoria.

Arthur H. Parmalee, Vice Chairman, 715 Lake Street, Oak Park.

Joseph K. Calvin, *Secretary*, 104 South Michigan Ave., Chicago.

Obstetricians and Gynecologists:

Wm. W. Cutter, Chairman, 405 Main Street, Peoria.

Ralph A. Reis, *Secretary*, 104 South Michigan Ave., Chicago.

Owing to the fact that these special meetings will be held on Tuesday morning only, the number of papers to be scheduled must necessarily

be limited and all members desiring to present papers on either subject should write the proper officers at an early date.

### NEW SECTION ON OBSTETRICS AND GYNECOLOGY FOR THE ILLINOIS STATE MEDICAL SOCIETY

The Obstetricians and Gynecologists have been authorized to arrange a program in these specialties and to conduct a meeting for those members of The Illinois Medical Society interested in connection with the Annual Meeting of The Illinois State Medical Society. The first Annual Meeting will be held on Tuesday morning, May 19, 1936, in Springfield.

Dr. William A. Cooley, Jefferson Building, Peoria, has been selected as Chairman for this first meeting and Dr. Ralph A. Reis, 104 South Michigan Ave., Chicago, the Secretary.

These officers are anxious to arrange their program as early as possible and will appreciate having members of The Illinois State Medical Society who are interested in Obstetrics and Gynecology, and who desire to present papers before this Section, get in touch with either of them at the earliest possible moment.

It is suggested that Chicago members desiring to present papers should write to Dr. Reis and downstate members should get in touch with Dr. Cooley.

Every member of the State Medical Society who is interested in Obstetrics and Gynecology should arrange to be present at the meeting and participate in the discussions following the presentation of the several papers to be scheduled.

### SICKNESS INSURANCE, STATE MEDICINE AND ALL THE ALLIED TRIBE ARE NOT A FREE WILL OFFERING FROM SOME FAIRY GODMOTHER

State medicine, health insurance, sickness insurance and all the allied tribe are paraded by their proponents as a species of golden glowing, free-will offering from some mysterious fairy godmother. The selling talk for state medicine and all its kin is that it will furnish complete and constant medical care and other illness coverage at a prize package rate equalled by nothing known previously,—not even the medicine show man of earlier decades, flowing beard, high

boots, big barouche and a black quartet! What this selling talk never includes,—unless it is swathed and veiled in fine promises—is that all such medical care is going to come out of the pockets of the people themselves, both by direct contribution, and by direct and indirect taxation; and by the tremendous increase in a public or semi-public payroll of an army of politically appointed “social service workers,” a profession that is popular and prolific since its fundamental job is meddling into the other fellow’s private concerns; and by the actual diminution of the comparatively scant wage earning ability of a skilled, conscientious class of citizens—the medical profession.

For the social service worker this highly touted system of state medicine is the veritable manna in the wilderness. It means JOBS!

Until this “health insurance” scheme got under way the chief job and mainstay of the social worker and the inspired interferer was the lay philanthropy known as “foundation” or “endowment.” In general a foundation is a belated attempt on the part of a man who has waxed wealthy on keen business principles to return to the general public from which his millions have been wrested, a certain percentage of those profits. Not in actual cash, by no means, but rather through some spectacular civic work that will keep green forever the memory of “the man who did.”

A great many workers in a great many factories complain that they would rather have this money in their pay envelopes to spend as their immediate needs direct rather than in gymnasiums, clinics and other giltedged “welfare work manifestations” at the various plants. But such is not the way of foundations. To the bitter end they boss the job, rule the roost and *spend the money!* Foundations are beloved of social workers—for the foundations laid jobs for them. But even the foundation jobs ran low in proportion to the demand. A new source must be met with, and somebody, it may not have been the foundations, but it certainly looks like it, decided that since health is the greatest mortal need, that the health proposition would be a good thing to tackle. Better yet, doctors are notoriously poor business men, so why not just start a movement to take over the medical profession, body, boots and breeches, hospitals and homes and call it a day?



Only one of the big foundations—The Milbank Memorial Fund,—has shown any signs of pulling in its horns as to its autocracies against the medical profession. Within a few months the Milbank Fund has included the resignation of its secretary, John A. Kingsbury, and at least a partial clipping of the wings of one of its propaganda workers, I. S. Falk. The rest of the ilk keep merrily on with their certainly selfishly motivated crusade to saddle another white elephant on the American taxpayer at the expense of national health.

In "*Minnesota Medicine*" for March, 1935, is quoted data assembled by Crownhart as to foundation propagandism and which states among other items that:

"Three large foundations especially have been interested in sickness insurance. These are

"1. Milbank Memorial Fund: Established in 1905 by Elizabeth Milbank Anderson with total gifts of over \$9,000.00. Mrs. Anderson was the daughter of Jeremiah Milbank, organizer and builder of the Chicago, Milwaukee and St. Paul railroad. She and her brother Joseph were heirs to the Jeremiah Milbank fortune. The Milbank Memorial Fund has always been under conservative direction closely connected with important banks, corporations and their legal advisors. Albert G. Milbank has been a member of the Board of Directors of the Borden Company and affiliated concerns and is now its president. Associated with him on the Board are Thomas Cochran, a member of the firm of J. P. Morgan Company; Frank L. Polk, another director of the Chase National Bank and one of the leading corporation attorneys of New York; and Cornelius Bliss, a director of the New York, New Haven and Hartford, the Radio Corporation of America, the Bankers' Trust Company, and the New York Life Insurance Co.

"Employees of the Fund have included John A. Kingsbury, secretary, who collaborated with Sir Arthur Newsholm in writing "Red Medicine" and who has been an outstanding propagandist for sickness insurance. I. S. Falk, a bacteriologist who was Professor of Bacteriology of the University of Chicago in 1920, Associate Director of Surveys of the Chicago Health Department, 1925-27 and an Associate Director of the Committee on Costs of Medical Care; and Edgar Sydenstricker, who is also part time statistician for the United States Public Health Service.

"2. The Julius Rosenwald Fund.: This fund was incorporated in 1917. In 1928-29, the Fund began to provide for 'distribution of medical service, particularly to the man of moderate means.' The assets of the Fund in 1929 amounted to \$34,000,000 and the Fund itself provides that both income and principal shall be expended by 1957. Up to his death in 1932, Mr. Rosenwald served as chairman of the Board of Trustees. In 1927, E. R. Embree, a former reporter of the New York Sun who previously served as vice-president of

the Rockefeller Foundation, became president of the Julius Rosenwald Fund. The Fund has given support to the Magazine Survey and has been largely interested in Negro welfare.

"The Fund employs Michael M. Davis (not a physician) as its Medical Director and C. Rufus Rorem as Davis' assistant.

"Davis was director of the Boston Dispensary from 1910 to 1920; organizer of the pay clinic for people of moderate means in Boston in 1913; organizer of the Cornell pay clinic in New York City in 1921 and has been Director of Medical Services of the Fund since 1928. He was a member of the Executive Committee of the Committee on Costs of Medical Care and a signer of its majority report.

"Rorem, Davis' assistant, was an instructor in Accounting at the University of Chicago, from 1924 to 1927 and an Associate Professor in 1929. In the years of 1928 and 1929, he was Assistant Dean of the School of Commerce and Administration. He is listed as an Economist and Accountant with the Committee on Costs of Medical Care during the years 1929-31. In recent years he has been "loaned" by the Fund to the American Hospital Association to promote a program of selling hospital prepayment insurance plans.

"3. The Twentieth Century Fund, Inc., with offices at 11 W. 42nd St., New York City. This Fund was organized by Edward Filene of Boston for the increase and stabilization of social well being. The funds of the organization have been furnished almost exclusively by Mr. Filene, who is president of the William Filene Sons Company of Boston. The Fund has expended in the neighborhood of \$850,000 up to 1933 and now holds \$450,000 in trust. Trustees of the Fund include Newton D. Baker, former Secretary of War; John H. Fahy, Boston, ex-president of the United States Chamber of Commerce; James G. McDonald, New York City, Chairman of the Foreign Policy Association; Owen D. Young, Chairman of the Board of the General Electric Company; Dean Roscoe Pound of Harvard Law School; Henry S. Dennison of the Dennison Manufacturing Company, Massachusetts; Henry Bliven, editor of The New Republic and Mr. Filene. Conservative members are in the strong majority.

"Mr. Filene declares that he made the initial gift for the five-year study of the Committee on Costs of Medical Care.

"The Fund has also contributed to the magazine survey, but the Fund, itself, appears in general to have relied upon the efforts of individual business men and industrialists rather than upon action by the government through legislation to advance the condition of labor. None of the economic studies sponsored by the Twentieth Century Fund appear to have touched upon hours of labor or low wages. Mr. Filene, himself, has spoken at length on many occasions to advocate some form of sickness insurance."

The Columbia Broadcasting System is broadcasting each Monday evening, over sixty-one stations, discussions dealing with socialization of medicine, which are predominantly propaganda in favor of socialization. The American Association for Social Security, Inc., Abra-

ham Epstein of New York City, executive secretary, has prepared a proposed health insurance bill for introduction into 1935 state legislature, which is most pernicious."

### DR. EDWARD H. OCHSNER'S "SOCIAL SECURITY" ACHIEVES THREE PRINTINGS WITHIN A YEAR

Unwonted success for a book of specialized appeal and dealing with the profound subject of social insurance, both medical and economic has been the lot of Dr. Edward H. Ochsner's book, "Social Security." Within a year it has achieved three printings.

Every once in a while a man of science hits the bull's eye of popular acclaim. On those occasions, it is difficult to discover which is the more surprised,—the man of science or the populace.

This situation has eventuated with Dr. Edward H. Ochsner, author of "Social Insurance and Economic Security." Publication of this volume about a year ago climaxed many years of successful medical practice and equally many years of careful epitomization of the economic security, first of the profession, and second of the nation, which Dr. Ochsner so ably serves.

Dr. Ochsner's book is now in its third printing. No less than 2,500 copies of the book were sold before the second edition left the press. The larger proportion of this advance sale came from the laity. An excellent sign, that. It shows that whether a prophet is or is not without honor in his own country that from the highways and by-ways, as at the Miracled Wedding Feast is granted his accolade.

Ochsner's book is a practical triumph. The November 1935 issue of the *University of Chicago Magazine* (Dr. Ochsner was a member of the class of 1894) makes in part this comment:

"The interest of Dr. Ochsner, a distinguished Chicago surgeon, in social insurance long antedates the advent of the California Utopians, the advent of the sympathetic sex in the cabinet and the writing of the pending bill for economic security. Ochsner, as a young doctor, acted as an assistant in the clinics of Berlin, Hamburg, and Leipzig, operated in connection with the social insurance scheme Bismarck gave Germany.

"Since discounting the official connection

many years ago, Ochsner has kept himself informed about the methods, progress and results of social insurance by reading everything he could lay eyes upon on the subject and by frequent visits to Germany and other countries. He has moreover maintained an interest in governmental affairs and has served his state on welfare boards and commissions. With this background and experience what Dr. Ochsner has to say about social insurance merits careful consideration. . . . Proponents of social insurance and of health insurance in particular will find nothing to support their position in this work. In the experience of the countries which have experimented Ochsner finds the results have been uniformly bad. And with the governmental extravagance and inefficiency which prevails in this country, he has no confidence in better results here. But he is not alone opposed to social insurance, such as it has been, but also as such! Even if the schemes did all it was claimed for them, Ochsner would still be against them. For, he points out, they would have the inevitable effect of destroying the initiative of a great number of people in whose independent activity, progress lies. If we have social insurance, Dr. Ochsner says, it will be at the price of the defeat of progress and recovery. With Prof. Wallace, Dr. Ickes, Prexy (almost of Welleslye wasn't it?) Perkins, and other cabinet economists except Dean Dern (he'll be Dern if He does—or doesn't) turning out so many volumes, one hesitates to say an approving word about a new book on the New Deal. Nevertheless an exception should be made here. In this country, in which social experimentation has become such a fetish that we are about to adopt European schemes without more than brief consideration, is worth while asking how the schemes have worked in Europe and what would be the consequences of their adoption here. DR. OCHSNER HAS RENDERED A PUBLIC SERVICE BY ASKING THE QUESTIONS AND ANSWERING THEM FROM HIS EXPERIENCE AND STUDY."

Which is all quite true.

"Ed" Ochsner is no novice at the give and take of the systems of health insurance. Almost to a man those who have known him in more than thirty years of practice will affirm that his "word is as good as his bond." That "Ed"



would say "thumbs down" to any insurance socialistic proposition is more than enough to any one who knows Ochsner. He had been a part of Bismarck's "unemployment insurance" long before American theorists, socialists and parlor pinks, had ever heard the term, let alone set out to try to understand it, an eventuality that has come to but few of them, even now, and even in the face of the Rooseveltian Security Act, called by Epstein, "Our Social Insecurity Act."

Gratifying as it is to the medical profession at large to realize the emphatic and practical triumph of Dr. Ochsner's book, it may not be amiss to urge upon the profession an individual reading, perusal and evaluation of the tome. The welter of misinformation, propaganda and falsehood, ever direct, even when not deliberate, as to the competencies of Social Insurance, is great. Into this mess the Ochsner book appears as a beacon light. Plain, cold facts, hard ironclad findings, are set forth with rare veracity, and good plain English with deft illumination upon this elusive yet burning issue. The deluge of doctrine and the flood of figures sent out by subsidized propagandists gets quick and apt analysis at the hands of Dr. Ochsner. An economic expert of rare distinction, he knows thoroughly how to separate chaff from wheat and how to present his winnowing in such fashion that they shine in letters of flame for laity and profession alike. His exactitude is dispassionate and mathematical as he presents facts proven by existence and experience. Having retired from the practice of medicine, Ochsner has at stake nothing but what is right and his devotion to human needs. His passion for justice is augmented by a quality that for lack of better wording might well be called social and economic competence—a gift of the gods that is inherent rather than acquired. Quoting directly "The reason why the wrong is so often victorious over the right is because only too often wrong is championed by someone or by a group that expect to make capital of it; while the right, which affects society as a whole, usually has no champion or champions who are personally, individually, or collectively, affected more than is society in general."

"My first direct personal contact with the problem of Social Insurance occurred in the

fall of 1896 as assistant in an ambulatory 'Krankenkasse' nose and throat clinic in Leipsic. The clinic was under the direct personal supervision of a 'Private Docent' of the university, a man in the forties with excellent training, high ideals, and fine personality, and yet I can truthfully say that the services rendered to the patients were mediocre, about the type of services usually rendered in the city and college dispensaries of this country. The treatments were mostly simply palliative, rarely curatives, and no time was spent in personal hygiene and preventive medicine for the simple reason that the time was so taken up with trivialities that there was no time left for the more important problems. It was my privilege to become fairly well acquainted with the head of the clinic and one day about 2:30 P. M., after we had all worked without interruption since 9:00 A. M., the head physician said to me—"Now I am going home to my private office so that I can supplement my meagre income from the 'Krankenkasse' with a little private practice income so that I can support my wife and baby decently." I had the privilege of entering his home, a modest second story apartment of seven rooms. One room, which was used as his consultation-room and the sitting-room, had the double function of family sitting-room and reception-room for patients. From Leipsic I went to Hamburg to serve as externe in the Neue Allgemeine Krankenkasse located in the suburb of Eppendorf, a cottage hospital at that time of some fifteen hundred beds. It is here that I had my second direct contact with Social Insurance. I had been there only a few days when one morning I made rounds with the head-surgeon of the hospital, Professor Kuemmel. We went to one of the pavilions for third-class male patients where Professor Kuemmel spent considerable time examining several patients. As we stepped out of the pavilion, Professor Kuemmel turned to me, the only American in the group, and with a good deal of emphasis and some heat said about the following: 'I have to waste one-quarter of my time ferreting out malingerers.' While there was probably some exaggeration in the statement I soon found out by further personal observation that there was much truth in what he said. My third personal experience was in the winter of 1904 and

1905 in the ambulatory 'Krankenkasse' clinic of Professor Schleich in Berlin.

"These three experiences, gave me an insight into the practical workings of Compulsory Health Insurance as no purely theoretical knowledge could have given me. In addition to the foregoing personal experience, I have kept in touch with the problem, reading and studying a fair number of the outstanding publications which have appeared from time to time on the subject. One more point has, I believe, an important bearing on this subject. During the first eighteen months which I spent on the continent of Europe in post-graduate study, I lived seven months in Vienna, two months in Leipsic, six months in Hamburg, and one month in Stockholm, I never slept one night in a hotel. Being able to speak the languages in these countries, I found lodging with middle-class families in the better portions of the city immediately on my arrival. I did this purposely in order to become better acquainted with their modes of life and their mental attitudes to many of the social, religious, and economic problems which confronted them. In this way I gained much interesting and valuable information on many subjects including Social Insurance and the story I obtained behind the scenes, so to speak, was a very different one from the one usually passed over the bright foot-lights by the well-paid laymen and quasi-professional men in high official positions who are intrusted with the management of the system."

Dr. Ochsner's book was revised for the second printing and the name changed from "Social Insurance" to "Social Security." The book may be secured from The Social Security Press, 538 South Wells St., Chicago, Illinois, and the price has been reduced from \$2.50 to fifty cents.

## MEDICINE THE GREAT HUMAN ART VS. MEDICINE THE INEXACT HUMAN SCIENCE

Big business with its ideas of "cent per cent." and mechanical efficiency has failed to grasp the fact that human understanding and applied psychology complement technical scientific knowledge of the body, its composition and its functions in the successful practice of medicine and

in the equipment of the competent medical practitioner.

This unit of medical equipment is commonly referred to as the "art of medicine." It should not be confused with the colloquial phrase descriptive of the flattering, whimsy-humouring, "good bedside manner" of the shekel coining "society physician," though it must be confessed that in some extreme cases simply that and nothing more brings many a neurotic patient out of the boudoir and into the parlor. But the *knack of the art of medicine* is a *sine qua non* in any medical pharmacopeia. The lack of it is productive of some of the greatest evils emanating from panel practice, an atmosphere wherein bare science may feebly struggle for existence and falter in trying to "hold the ship," but wherein there is no place for the equality indispensable "Art of Medicine."

Any conscientious physician is the first to admit that in the healing of suffering humanity, science itself is not enough. "Man can not live by bread alone," says Holy Writ. Nor can medicine prosper in the walks of service with complete elimination of everything except the exactly scientific.

One of the finer functions of the art of medicine lies on the physician's ability to adjust the idiosyncrasies of the patient, both mental and corporeal, to the indicated treatment, and to gain the patient's confidence and trust so that this can come about. Without this adjuvment, efficiency, even though scientifically exact, will fall by the wayside.

The present trend towards regimentation, standardization and general mechanization is all against the art of medicine. Efficiency experts are out to make of the human race what God Himself did not do anywhere in creation,—to make all things equal. Seldom are two trees, let alone an orchard or a forest, of uniform height, breadth, density or compactness of foliage; and even the proverbial "two peas in a pod" lack this quality of exact duplication. Perhaps these efficiency experts will manage to improve on God Almighty and get everything "redded up" and aligned like type in a newspaper column. If they do then the art of medicine will be not only outlawed but superfluous. Up until then however the efficient medical profession in so much as this is allowed by law, will continue the liberal,



the sagacious and the expert application of the art of medicine let the regimenters fall where they will.

### THE GOVERNMENT IS ATTEMPTING TO REGULATE AND CONTROL EVERYTHING

As we see the situation, the Federal Government is striving to control the private lives of individuals, the conditions under which the individuals must live and function, regulating the personal habits of individuals; control of the schools of the country to rock the cradles (if the birth controls permit babies to be born) to nationalize medicine, dentistry and pharmacy, labor, education, railroads, farming, stock yards and finally there will be an attempt to control religion. In order to save the country from an establishment of dictatorship let us get back to the constitution at the earliest possible moment.

### BACK NUMBERS OF THE JOURNAL WANTED

We have several requests from libraries and individuals for the December, 1934, issue of the JOURNAL. Unused or unwanted copies of this number will be much appreciated.

Illinois Medical Journal, 6221 Kenmore Avenue, Chicago.

### INFANT MORTALITY IN NEW YORK A HUNDRED YEARS AGO

It has been generally assumed that the infant mortality rates must have been exceedingly high a hundred years ago and that a fairly continuous reduction has taken place since that time. Bolduan and Weiner<sup>1</sup> have recently attempted to determine the accuracy of that assumption when applied to New York City. The statistical data of that time are admittedly inaccurate and incomplete, but by the use of the so-called city inspectors' reports compiled regularly from the interment records of the various cemeteries it was found possible to approximate the number of infant deaths. Evidence exists also for believing that the birth rate at the time was about 40 per thousand. It was therefore possible to postulate statistics carrying a reasonable accuracy. A chart constructed from these statistics and extended by the more accurate recording of later years brings out the fact that from a relatively low infant mortality rate at the beginning of the nineteenth century the rate rose to a maximum during the sixties and that it thereafter declined. The evidence therefore indicates that in New York City the

infant mortality rate at the beginning of the nineteenth century was probably no higher than it was at the opening of the present century. The factors affecting the rate were, of course, quite different at that time than at present.—J. A. M. A.

### AN OVERSIGHT

"Boy, I'm scared! I just got a letter from a man telling me he'd shoot me if I didn't stay away from his wife."

"Well, all you have to do is stay away."

"Yeah, but he didn't sign his name."—*The Stoic*.

### MAGNA CHARTA

Magna Charta was a soldier in the Revolutionary War, who was seriously wounded. His wife, hearing of the incident, immediately went to him, picked up his gun, took his place in the battle, and said, "Shoot if you must this old gray head, but I will fight it out on this line if it takes all summer."

The traditional attitude of the medical profession against advertising and the opposition to any personal glorification has been a force for good and productive of keeping a decent dignity within the medical ranks, not deemed necessary in other callings. However, this habit of mind and usage has tended to keep the doctors too silent and has resulted in the lay public forming a dim and hazy idea of medical thought, its aims and ideals. This lack of understanding is in large measure responsible for the attitude of many of those who embrace strange and mysterious methods of healing and those who do not feel in sympathy with what they consider to be the real purposes of the doctors as a class.—*Bulletin, Pierce County Medical Society*.

There is no claim of perfection on the part of the profession for the present scheme of medical practice. Change is inevitable. Medicine has always adapted itself to the social and economic order in which it finds itself. This it can continue to do only if freed of politicalized regulation and control. There is no opposition on the part of the profession to the proper study and trial of experimental plans for medical care in changed form. But medicine will vigorously defend its personal rights which are ignored by lay workers who have nothing better to offer than state medicine.—*The Journal of the Arkansas Medical Society*.

It is axiomatic that nothing received for nothing is worth nothing. . . . But on the other hand, there has been no time in the history of the country when true charity is more needed in medical work, as a patriotic and humanitarian obligation, than the present. It must be administered with care and thoughtfulness, with tact, and with a strict sense of its objective—helping others to help themselves—or a medical paternalistic empire will be created that eventually will undermine the finest things in medicine and react with untold losses to everybody concerned.—*Jackson County Medical Journal, Kansas City, Mo.*

1. Bolduan, Charles, and Weiner, Louis: Infant Mortality in New York City One Hundred Years Ago. J. Pediat. 7: 55 (July) 1935.

## MEDICAL ECONOMICS

Edited by the Committee on Medical Economics  
of the

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Address all letters and communications to the Chairman.

### MEDICAL ECONOMICS COLUMN FOR JANUARY

The annual meeting of the Northwest Medical Conference will be held at the Palmer House in Chicago on Sunday, February 16, 1936. This is the first time that this meeting has been held outside of Minneapolis and St. Paul. From a small beginning, it has grown until it is now the outstanding meeting of the country, where the discussion is limited to subjects of importance in the field of Medical Economics. Last year representatives from 16 different States were present and this year we hope for an even larger attendance. That was one of the reasons for bringing this meeting to Chicago at this time. From the interest shown so far there is no doubt about a most interesting and instructive meeting. The program as arranged takes the nature of a symposium on several of the outstanding subjects of Medical Economics. The meeting is strictly a one-day affair, beginning with a breakfast and general get-together at 8:30 A. M. in the Red Lacquer Room, where all of the meetings are to be held.

Subjects to be presented are as follows:

1. The Social Security Act and its relation to the Medical Profession.
2. Reciprocal Relations between the State Medical Societies of the Midwest.
3. Interprofessional Relations within the County.
4. Standardization of the Activities of the Committees on Medical Economics in Nearby States. All of these papers will be limited to twenty minutes and followed by ten minute discussion by two prominent men, previously selected. Then the subject will be thrown open to general discussion. Luncheon will be held at 12:30 P. M. in the same room.

The Council of the Illinois State Medical Society and the Committee on Medical Economics feel that this is a great opportunity for the men

of Chicago and Illinois, who are interested in this subject to attend a meeting of this group. They are all truly interested in this subject and the papers and discussion are most stimulating to all present. The programs will soon be printed and sent to all those who have attended the previous meetings of the conference. In addition, programs will be sent to those men, known to be interested in this subject. If by some oversight you fail to receive a copy, kindly write to the Chairman of this Committee, who is the Secretary of the Conference this year and he will be glad to send you one. Certainly the Presidents and Secretaries of the County Societies in Northern Illinois should all make a special effort to attend.

The list of speakers who are willing to cooperate in making talks to the laity is now in the hands of the Secretary of the Committee on Education of the Illinois State Medical Society, Miss McArthur and she should be able to furnish speakers for talks to any lay group on sufficient notice. This is and should be one of the main methods of presenting the medical side of the question of State Medicine. We hope that every physician in the state will lend his influence to have speakers from the medical profession selected to make talks before every civic club in his city, chiefly the Lions, Rotary, Kiwanis, Women's Clubs, Parent-Teacher Associations and similar organizations. We have found all of them most attentive and interested audiences with an open mind on this subject, eager for authentic information.

The President-Elect, R. L. Green, M.D., of Peoria, presents an article directly following this. The subject: "Stop-Look-and-Listen—Danger Ahead," should rouse your interest. It is an excellent article and we hope that all of you will take time to read the same. We feel sure that most of you will do some real thinking, when you finish reading it.

We hope that all of you either heard the

Radio Debate on *State Medicine* on November 12 or have read the same in the November BULLETIN of the A. M. A. Many fine facts were presented and all thinking medical men should be able to present similar information whenever the opportunity is offered. It will only take a few minutes to read over the entire article.

E. S. Hamilton,

Chairman of the Committee on Medical  
Economics

### STOP-LOOK-AND-LISTEN—DANGER AHEAD

You always pay attention to this sign when you drive down the road. Now is this time to pay attention to signs on the medical road. There is a bad curve to the left, and a stop. The extension of the highway, and the course will be influenced by you.

We kept the Sheppard-Towner Act out of Illinois by hard work. It will be just as hard this time and many different battles to fight on enabling act to match dollars with government on the several projects in the social security act. This act is full of dynamite for the medical profession.

The generals of the army plan, direct, and set examples, but the fight must be carried on by the soldiers. There must not be any laggards or deserters. When word comes out of Dr. Neal's office to bear down on some political opponent—do it. Just because he belongs to your party, your church, your lodge, or has given a job to your relative does not excuse you. This is a fight to a finish.

Your officers have been carrying on the battle of "State Medicine" for many years. Under the leadership of our able editor we have had occasion to fight some big men; winning by being united.

Some young men say "all right, let it come—we will all have a job." The attorneys thought that. Who settles the industrial cases? Not lawyers, but adjusters. Same in industrial medical work. It has been proven by examination on entry and check-up on hazard, a few men can care for several thousand.

How do you know the man on the throne will pick YOU to carry out the dictates?

Mental cases have gone institutional—a few

men caring for thousands. The tuberculous, same way. Contagion in some cities is institutional. Cancer is proposed. Old age is in line; pension will lead to institutional care in ten years. Mother, dear mother, you must know when the sign is right in Zodiac. Nurse will inform you. When sign is right, and child arrives, with good public health instruction, the mother will know as much as the pediatrician.

The hospital will be subsidized so the surgeon may be on a salary. The cripple and handicaps will have special nurse to follow up the clinic of orthopedics. What's left for you, Doctor?

Drs. Skaggs and Camp covered nearly all the counties on economics last year, this year Dr. Reed has added his vocabulary to bring you each and every one a clear view.

The A. M. A. had a special meeting which was an expense in time and money. Also have had from one to three men at Washington to do everything possible to stem the tide the past year.

Now, you each and everyone, must say to your man in the legislature: Listen to us, for it is up to states to qualify under the act.

If this comes to pass do not blame your officers. The headquarters have worked hard and your state officers have been in the battle more than fifteen years. The press have accused them of prejudice for personal gain.

The truth about it is nearly every man in A. M. A. house could sign off tomorrow from practice of medicine. They spend their time and money in this fight for the love of the profession.

Dr. Cabot, at Quincy, said people do not care for a choice of physician; citing the group he is connected with.

First place, patients go to this group same reason they consult some particular man individually. Reputation which usually has been checked by a friend in whom they have confidence.

Their confidence in the men of this group of hand-picked, carefully packed, specially labeled doctors, is not as great as in years past. Yet in last analysis some one man gives the answer. The heads are result of careful selection. Not political appointees.

Political appointees are not easy to remove. But you can look around and find men who



have left this group for one reason or another at your elbow.

The soul of the profession is at stake. You may be the chosen one this week, this month, or this year. When the machine is organized it will not require so many men to operate. You may then be dropped.

What shall it profit a man to gain the whole world and lose his own soul? Ministers of several denominations have used this text. It would be a fitting one for the medical profession to take home for a quiet evening at home.

R. L. Green, M. D.

President-Elect, Illinois State Medical Society.

### Correspondence

WHEN WE STAND ON OUR OWN FEET  
AND DEVELOP OUR OWN PHILOSOPHIES  
AND RESOURCES WE ARE  
MAKING OUTSTANDING CONTRIBUTIONS  
TO THE IMPROVEMENT OF THE  
WORLD

Springfield, Illinois  
December 30, 1935

To the Editor:

The position of organized medicine is clear and unmistakable. It favors Americanism first, last and forever. Socialized medicine as well as the multiplicity of other socialistic schemes are European in concept and foreign to our ideals. Our forebears left Europe because they didn't like European methods of government. They founded this nation along new lines to escape the ways of Europe. Two things illustrate what we get when we imitate and follow Europe. These are the World War aftermath and the lowly English sparrow.

What the War did for us everybody knows. The English sparrow was introduced into this country in 1850 by one Pike on the beautiful theory that this bird would devour all ornamental tree insects and thus be a universal blessing. Instead, the sparrow stoutly refused to feed on insects but attacked the grain fields and is now a monumental and expensive pest.

Four things illustrate what the character of Americanism is. These are the republican form of government, the lowly spud, corn, and tomatoes. These things America gave to the world.

In other words, when we stand on our own

feet and develop our own philosophies and resources we make outstanding contributions to the improvement of the world. When we copy after and follow Europe we are left with bad debts and get a pest for our pains.

Calm judgment, clear thinking and organized vigorous effort are needed to keep alive the American principles and American traditions in this country. It is the special task of physicians to steer true the course of legislative acts and of social practice in respect to medical matters. Your legislative committee can function successfully in these matters only to the extent of support given by every doctor and every society. Let concerted action and constant alertness be the watchword.

J. R. Neal, M. D.

Chairman, Legislative Committee.

### TRENDS IN MEDICAL LEGISLATION

Dear Doctor:

Legislative bills, enacted or offered for passage recently in Illinois, other states and the National Congress, show a curious trend of thought with respect to medicine. They indicate a strange desire to exact higher qualifications of practitioners (medical and cult), on the one hand and to favor the cults by liberalizing the license laws on the other. They seek to collect more revenue from medical practitioners and at the same time disturb the economic system by socializing practice. They attempt to extend a greater degree of medical care to more people and at the same time to regiment practitioners in a way that greatly curtails their freedom and usefulness as physicians. The bills reflect a status of popular opinion concerning medicine quite similar to that expressed on economics by the Townsend old age pension plan. Everything is wanted without regard to the basic principles which underlie good professional service in the one and sound economics in the other.

While many of the bills failed, they express an undercurrent of thought strong enough to manifest itself in legislative proposals. Iowa, for example, passed a basic science law applicable to candidates for licenses in any of the healing arts but similar bills were killed in seven other states. At the same time, two states, Iowa and New Jersey, enacted laws requiring higher educational qualifications of osteopaths, while in ten states bills increasing the qualifications of chiro-



practitioners were offered, becoming a law in Maine. On the other hand, attempts were made to broaden the scope of osteopathic and chiropractic practice in eight and seven states, respectively. Bills permitting any practitioner of the healing art recognized by state licensure to practice in tax supported hospitals were offered in nine states and became law (relative to certain institutions) in Indiana, Kansas and North Carolina. Bills were introduced in behalf of numerous other cults such as naturopaths, sanipractic and practitioners of electrolysis, magnetic healing, physiotherapy, physiomedicine, occupational therapy, drugless therapeutics, natural therapy, prayer and spiritual means, etc.

Bills authorizing non-profit corporations to operate hospital insurance schemes were offered in eight states and enacted in four, Alabama, California, Illinois and Maryland. A defeated Illinois bill proposed to permit corporations to practice medicine.

The National Congress enacted the Social Security Bill which authorizes appropriations for the treatment and hospital care of physically handicapped children, for the promotion of maternal and infant hygiene and for the expansion of public health service. All programs under these schemes must be approved at Washington.

Nine states considered bills making easier the revocation of medical licenses and in four states the bills passed. Laws which levy occupational tax on practitioners of the healing art were enacted in four states (defeated in two) while bills granting liens to practitioners for services rendered in accident cases failed in twelve states (passed in North Carolina).

No bill relating directly to medical practice has been offered in the Special Session of the Illinois General Assembly. S. B. 40, however, would enable plaintiffs in personal injury and property damage cases to sue the alleged perpetrator and his insurer (if any) *jointly* to recover damages. Passage of this bill, which we are actively opposing, would very probably result in the frequent granting of judgments against insurance companies on the basis of sentiment rather than merit of the cases involved. Premiums for indemnity coverage would mount if the bill should become a law.

The old age pension scheme, allowing maximum of \$30 monthly to needy persons over 65 years with provisions for state and federal par-

ticipation to be administered through county welfare boards, has been passed by the General Assembly. This is the most important piece of legislation enacted at the Special Session.

H. B. 54, Motor Vehicle Drivers' License, is still on second reading in the House. Has not been called for vote.

This brief review of the 1935 legislative record shows clearly that medical matters are in a state of flux in the popular mind. People have been impressed with the idea that more "doctoring" will solve most of their health problems. They are willing to believe that medical care costs too much. Their sympathies lean toward the cults but they are not yet willing to let down the licensure bars. They are being taught that the medical profession is holding out on the public.

Under these circumstances the course imperative for organized medicine to pursue must be plain to every thinking physician. United, organized effort must be employed to maintain the standard of medical practice, freedom of action, opposition to corporation and government practice and the utmost respect on the part of physicians for the highest ethics and integrity in practice.

Organized, intelligent effort toward public education on the one hand and concerning legislation on the other, has been singularly successful in Illinois. The situation in this state and in the nation generally requires the same prescription in the future. The future of medicine, which has by no means been determined, will be very largely what the organized medical profession makes of it. By aggressive interest in educational and legislative matters they can mould the system or they can sit idly on the side lines while uplifters shape the course of medical practice.

As it stands the National Social Security Act has not engulfed medical practice. It *does set up in Washington the most powerful political agency ever organized in this country which ultimately will have command over billions of dollars and thousands of employes* through funds collected for unemployment and old age pensions and various services. This concentration of power will set the stage for a Huey Long to establish rigid fascism in this country.

Let this trend of events inspire a New Year's resolution of steadfast devotion to Americanism with a full measure of individual freedom not to

physicians alone but to all citizens of this country.

The Legislature will reconvene January 7, 1936, but an early final adjournment is expected.

John R. Neal, M. D.

Chairman, Legislative Committee.

## REPORT OF EDUCATIONAL COMMITTEE

*November and December, 1935*

### "SOCIALIZED MEDICINE"

During the past two months the Committee has concentrated on the preparation and distribution of material on the most popular subject of the day, "The Socialization of Medicine."

Requests have come in from many sections of the state and even from Ohio, Nebraska, Michigan. All available material has been sent, including the material prepared by the American Medical Association, that compiled by Dr. E. P. Coleman and his Committee, and some special articles prepared by the Kansas and Minnesota State Medical Societies, and reprints of Dr. Charles B. Reed's article on The Social Security Act.

The Committee could make good use of a compilation of material prepared by the doctors of Illinois which might bear more weight than any other we could send out because it would represent local opinion.

Two hundred copies each of the following articles were mimeographed to send out to debaters, and doctors who were securing material for their local debating teams and for their own personal use:

"The Middleman," "Insurance," "Where Do We Go from Here and Why," "Government's Place in Health," "Our Medical Destination," "The Child and the Family Doctor," "Special Summary of the Social Security Act," "Symposium on Socialized Medicine by the Kansas State Medical Society," "State Medicine by the Minnesota State Medical Society."

Whenever possible the Committee has suggested that clubs have programs on the Social Security Act. It has been possible to arrange for a number of such programs before some very important groups and the Committee has felt the importance of presenting the medical viewpoint before the public's mind is made up concerning this subject.

Copies of Dr. Reed's article "The Social Security Act and the Doctors" was sent to 132 libraries of the state, all A. M. A. Delegates, all Illinois Legislators, the Health Chairmen of all Parent Teacher Associations, the Presidents of clubs belonging to the Illinois Federation of Women's Clubs, and the Public Health Chairmen of the Federation.

The Committee is planning to send a letter to high school principals of Illinois asking if they are to debate the subject of health insurance, if so, the date. This information will then be sent to the doctors in the communities together with material

which they may supply the debaters. It is thought that the personal contact between the local doctors and the students is going to bring about the desired results.

### SPEAKERS

Eighty-four—Programs were arranged for lay groups during the two months. Practically every type of lay organization was included, and the range of subjects covered those relating to the baby on through old age, physical and mental. The programs were about equally divided between Cook County and down state.

### RADIO

Fifty—Programs were given over the air by members of the Illinois State Medical Society. The Committee was granted the privilege of using WBBM, WLS, WENR in addition to the regular time given over WGN, WJJD and WAAF.

The Committee has been asked to schedule a ten minute program every other Tuesday over WBBM, which means that the Medical Society has access to four excellent Chicago stations.

### SCIENTIFIC SERVICE

The new list of suggested speakers and subjects for scientific meetings was compiled, printed and sent to all secretaries of medical societies.

Letters were sent to the county societies announcing that the Scientific Service Committee would be able to arrange clinical programs on obstetrics, heart disease, orthopedics, pediatrics or other subjects which might be of local interest.

35—Scientific programs were arranged for county societies.

2—Heart Clinics were sponsored.

### SPECIAL SERVICE TO COUNTY MEDICAL SOCIETIES

130—Postal card notices for Randolph County Medical Society.

296—Postal card notices for La Salle County Medical Society.

225—Announcements of Perry County Medical society meeting.

164—Announcements of Bureau County Medical Society meeting.

150—Invitations to physicians re Perry County January meeting.

Newspaper publicity for Medical Meetings:

20—Newspapers sent story of Randolph County meeting.

8—Newspapers sent story of La Salle County meeting.

50—Newspapers sent story of Perry County Heart Clinic.

57—Newspapers sent story of Fulton County meeting.

Letters were sent to the Presidents and Secretaries of all County Medical Societies telling them of the new Baby Book available through the State Department of Public Health.

Newspaper service to Chicago Medical Society:

18—Releases to metropolitan papers announcing meetings of the Central Branch of Chicago Medical Society.

4—Notices for Douglas Park November meeting.

10—Notices for 2 meetings of Calumet Branch.

12—Notices for 3 North Shore Branch meetings.

8—Notices of 2 Northwest Branch meetings.

15—Notices of 3 Englewood Branch meetings.

5—Releases to Branch Bulletins.

#### PRESS SERVICE

40—Health articles were sent on the monthly service to papers.

841—Releases to be used as the Health Column in downstate papers.

195—Releases to be used as the Health Column in Chicago papers.

16—Articles to the Blackhawk Park Nursery School of Chicago.

16—Articles to Chicago Red Cross and Central Y. W. C. A.

1108

#### LIBRARIES

1,255—Health articles and Dr. Reed's reprint on "The Social Security Act and the Doctors" were sent to 132 libraries in Illinois.

#### MISCELLANEOUS

A number of the special societies of the Chicago Medical Society have been most generous in co-operating with the Educational Committee by supplying excellent articles for use in the Health Column sponsored by the Committee in many Illinois newspapers. The Chicago Pediatric Society, the Chicago Orthopedic Society and the Chicago Society of Allergy have been particularly helpful.

The following articles were written by physicians and sent to the Committee for editing and release:

Whooping Cough

Smallpox Vaccination

Congenital Dislocation of the Hip

Thumb Sucking

Typhoid Fever in Children

Diarrhea of Infancy

Sinus Infection

Growing Pains

Maternal Nursing

Earache

Typhoid Fever

Tetanus

Diabetes

Thyroid

Chickenpox

Heart Disease in Childhood

The Schick Test

Measles

Rheumatism in Childhood

Tuberculosis

The Thymus

It might be well to mention a meeting which was

held in Chicago in December, sponsored by the Child Hygiene and Summer Round-Up Chairmen of the Illinois Congress of Parents and Teachers. This meeting was for the purpose of introducing representatives of the Illinois State Medical Society and the Dental Society to the health chairmen of the Congress. Doctors R. R. Ferguson and Charles B. Reed represented the Medical Society. This is the first time that such a meeting has been called for by the Parent Teacher Associations.

Respectfully submitted,

Jean McArthur, Secretary.

#### THE AMERICAN COLLEGE OF PHYSICIANS

*Detroit, March 2-6, 1936*

The Twentieth Annual Session of the American College of Physicians will be held in Detroit with headquarters at the Book-Cadillac Hotel, March 2-6, 1936.

Dr. James Alex. Miller, of New York City, is President of the College, and has arranged a program of general scientific sessions of great interest to those engaged in the practice of Internal Medicine and associated specialties. Dr. Charles G. Jennings, of Detroit, is the General Chairman of the Session, and is in charge of the program of clinics and demonstrations in the hospitals, medical schools and other Detroit institutions. Dr. James D. Bruce, Vice President in charge of University Relations, University of Michigan, is Vice Chairman of the Committee on Arrangements, and has in charge the preparation of an all-day program to be conducted at the University of Michigan on Wednesday, March 4. Dr. Walter B. Cannon, Professor of Physiology at Harvard University Medical School, will deliver the annual Convocation Oration on "The Role of Emotion in Disease." Dr. Miller's presidential address will be on "The Changing Order in Medicine." About fifty eminent authorities will present papers at the general scientific sessions, while clinics and demonstrations will be conducted at the Harper, Receiving, Ford, Grace, Herman Kiefer and Children's Hospitals, of Detroit.

#### ACCIDENTS IN THE HOME ARE ON THE INCREASE

According to Mr. Glossinger during the year 1934 there were 101,000 persons in the United States who met death by accident. However, an additional 370,000 were permanently disabled and 9,821,000 temporarily disabled. Accidents in the home far exceeded accidents on the highways in the number of injured as may be seen from the following figures: On the highways—permanently disabled 100,000, injured—another million; in the home—150,000 permanent disabilities and nearly five million others injured. Furthermore, accidents in the home continue to increase year by year while motor mishaps, largely through public education, are gradually being brought under control. The total cost of accidents during 1934 is



estimated at \$3,500,000,000, which is more than the sum spent annually by the people of the United States for medical care in all its phases.

### CHANGE OF NAME FOR THE RADIOLOGICAL REVIEW

The Radiological Review and Chicago Medical Recorder, published at Quincy, Illinois, since 1924, will change its name beginning in January and become the Radiologic Review and Mississippi Valley Medical Journal, the official publication of the recently formed Mississippi Valley Medical Society. The editorial policies will be the same as the old Radiological Review with the addition of the publication of the papers read before the Mississippi Valley Medical Society. Dr. Harold Swanberg, the Secretary-Treasurer of the Mississippi Valley Medical Society and Editor of the old Journal, will remain as editor. The Editorial Board of the Radiologic Review will be supplemented by an Editorial Board from the membership of the Mississippi Valley Medical Society comprising the following:

Isaac A. Abt, M.D., Chicago, Ill.; Karl A. Meyer, M.D., Chicago, Ill.; M. Pinson Neal, M.D., Columbia, Mo.; Quitman U. Newell, M.D., St. Louis, Mo.; F. Garm Norbury, M.D., Jacksonville, Ill.; Walter Stevenson, M.D., Quincy, Ill.; Dan G. Stine, M.D., Columbia, Mo.; Meyer Wiener, M.D., St. Louis, Mo.

The new publication will be published by the Radiologic Review Publishing Company, at Quincy, Illinois.

### SPEECH CORRECTION

The American Speech Correction Association is holding its annual convention at the Stevens Hotel, Chicago, December 31, 1935 to January 2, 1936 inclusive. The present officers of the association are:

President—Dr. Lee Edward Travis, Professor of Speech Pathology, University of Iowa, Iowa City, Iowa.

Vice-President—Dr. Meyer Solomon, Associate in Nervous and Mental Diseases, Northwestern University Medical School, Chicago.

Permanent Secretary—Samuel D. Robbins, Instructor in Speech Pathology, Emerson College, Boston, Mass.

Treasurer—Bryng Bryngelson, Director Speech Clinic, University of Minnesota, Minneapolis, Minn.

The American Speech Correction Association consists of students of speech disorders connected for the most part with the various universities in this country. It is the official body which contains most of the scientific students of disorders of speech in the United States. Its members are devoted to research in this field, and the organization is doing its utmost to raise the standards of requirements and ethics in this field to as high a level as possible.

### EXAMINATION IN OPHTHALMOLOGY

American Board of Ophthalmology, Room 1417, 122 South Michigan Ave., Chicago. 1936 Examinations, Kansas City, May 11th, (at time of meeting of *A. M. A.*) and New York City, in October (at time

of meeting of *American Academy*). All applications and case reports must be filed at least sixty days before date of examination.

For information, syllabuses and application forms please write at once to Dr. Thomas D. Allen, Assistant Secretary, 122 South Michigan Ave., Chicago, Ill.

### Miscellany

#### TREATMENT OF DIABETES WITH INSULIN (AFTER TEN YEARS): CONTRASTING EFFECTS OF NORMAL AND OF OLDER DIABETIC DIETS

H. Rawle Geyelin, New York (*Journal A. M. A.*, April 6, 1935), summarizes the results of treatment in a group of 150 cases of diabetes treated with insulin and a high carbohydrate diet during the past ten years. Patients treated with high carbohydrate-low fat diets achieve greater effectiveness of insulin as judged by the ratio of units of insulin to grams of carbohydrate oxidized. The administration of such diets overcomes hypercholesterinemia. In the majority of instances, blood sugar levels are reduced after the administration of high carbohydrate diets. Hyperinsulinism is less common and less severe. Complicating conditions such as tuberculosis, gangrene and cardiovascular disease are less common when patients are being treated with the high carbohydrate diet (normal calories). After ten years of application of the high carbohydrate diet, the majority of patients show no loss of food tolerance or any other demonstrable retrogression of the diabetes.

#### STREPTOCOCCIC INFECTION SIMULATING RINGWORM OF HANDS AND FEET

According to James H. Mitchell, Chicago (*Journal A. M. A.*, April 6, 1935), there is a marked tendency to regard all acrodermatoses as ringworm of the extremities. There is a need for careful laboratory examination of all dermatoses of the hands and feet before arriving at a diagnosis. He agrees with Sabouraud, Macleod, Walker and Roxburgh that impetigo (Tilbury Fox) is due to the streptococcus; this fact can be proved with ease. A group of five cases of streptococcic infections (impetigo) of the extremities simulated mycotic infection sufficiently to lead to errors in diagnosis. The infections were found to yield within one week to baths of corrosive mercuric chloride and weak ammoniated mercury ointment.

#### BLOOD PRESSURE AND PSYCHOSES

Many patients suffering from high blood pressure cannot give up their work, though frequently they are acutely conscious of diminishing power of concentration and of loss of memory. Too often these patients have no interests outside their work and, when induced or compelled to retire, their depression deepens and a definite psychosis ensues. The patient with chronic hypotension is different. Lack of exercise renders him obese and flabby; he becomes lethargic, introspective and often hypochondriacal.—Dr. C. W. J. Brasher, in *Practitioner* (Lond.), Dec. 1932.



## Original Articles

### PREVENTIVE MEDICINE IN THE MEDICAL CURRICULUM

#### An Historical Perspective

D. J. DAVIS, M. D.

Dean, University of Illinois, College of Medicine,

CHICAGO

In the evolution and development of the medical curriculum the following sequence in general is noted. First there is the discovery of medical facts. Then follows a period of application and testing by one or many persons, usually practitioners of medicine. Sooner or later, varying according to the nature of the discovery, occurs the dissemination of the theories and practice through education; and as a part of this stage the insertion of the subject into the medical curriculum. Usually the lag from the first step to the last amounts to a number of years.

Dr. John Morgan in the year 1765 in Philadelphia formulated and announced the first medical curriculum in the United States in a discourse on the occasion of the Commencement of the first medical college in this country, now the University of Pennsylvania. In this discourse not one word was said specifically about public health or preventive medicine. Dr. Morgan had recently graduated in medicine from Edinburgh, then the great medical center of Europe. He says he wrote much of this justly celebrated discourse in Paris while spending five years in Europe "engaged in fitting himself for more extensive usefulness in his profession." The curriculum which he presented on that occasion no doubt expressed the most advanced medical thought of his day.

A few years later the great name of Benjamin Rush came into the foreground in medical education. He continued as the dominant figure during the period of the American Revolution and for the following thirty years. In 1793 and succeeding years appeared the disastrous yellow fever epidemic in Philadelphia to which Rush devoted his best efforts. As a result he gave us a clinical description of this disease which remains a classic to this day. As to its etiology, he says it was produced by "ex-

halations." He states "The origin of this fever was discovered to me at the same time from the account which Dr. Foulke gave me of a quantity of damaged coffee which had been thrown upon Mr. Ball's wharf . . . and which had putrified there to the great annoyance of the whole neighborhood. After this consultation I was able to trace all the cases of fever which I mentioned to this source."<sup>1</sup> Again speaking of the 1796 epidemic, he says it was produced by the "exhalations of putrid meat which had been carelessly thrown upon a wharf."

These are the statements of the greatest epidemiologist and medical teacher of his time concerning the most serious epidemic then prevailing in this country. In spite of his errors and his naive conceptions of disease no doubt at times he thought seriously and long of a rational system of prevention. In his notable summary made toward the close of his life on the state of medicine between 1760 and 1809 the most important advance he could mention was the adoption of vaccination in smallpox in preference to inoculation. In his review of progress, in spite of the truly deplorable state of sanitation and transmissible disease, he never lost hope but had the courage and the imagination to write this remarkable prophecy. "Could we lift the curtain of time which separates the year 1847 from our view, we should see cancers, pulmonary consumptions, apoplexies, palsies, epilepsy, and hydrophobia struck out of the list of mortal diseases, and many others which still retain an occasional power over life, rendered perfectly harmless, provided the same number of discoveries and improvements shall be made in medicine in the intermediate years that have been made since the year 1766"<sup>2</sup> And again, this statement from his pen appears, "I look for the time when our courts of law shall punish cities and villages for permitting any of the sources of bilious and malignant fevers to exist within their jurisdiction."

But in 1847 the hopes of Benjamin Rush had not as yet come to pass. A really great man, Dr. Jacob Bigelow of Harvard University, in 1850 wrote his "Practical Views on Medical Education." He states "We know nothing of the

1. Rush's Works. Volume 3. Page 77. Philadelphia, 1809.

2. Rush's Works. Volume 4. Page 426. Philadelphia, 1809.

vehicle of cholera or influenza, nor is it probably in the power of any physician, by any art or application of his knowledge, to produce in a given healthy man a case of common pneumonia or of acute rheumatism, of diabetes or Bright's kidney, of hypertrophy or of cancer, or even of a common boil, or wart."<sup>3</sup> He reviews Anatomy, Physiology, Chemistry, Materia Medica, Pathology, Etiology, Surgery, Obstetrics, but not a word appears specifically concerning public health or preventive medicine as such. Only vaccination was recognized quite as it had been nearly 50 years before. It is interesting to note that no mention appears in this monograph by Bigelow in the important contribution of Oliver Wendell Holmes written in 1843 on the prevention of puerperal fever and made there in his own University.

I do not intend to imply that no attention whatever was given in these early years to the preventive aspects of disease. In reading the lectures of the really great men of a hundred and more years ago frequent references are found to the causes and control of disease in all fields. Inoculation and later vaccination were definite and specific preventive procedures and were taught as such. Indeed inoculation was a specialty in itself and professional inoculators skilled in this practice went about doing little else. With this exception however the prevention of disease was not set apart in their teaching programs and therefore occupied a very subordinate place in the education of students in the colleges or of apprentices in private practice.

In the year 1850 appeared the valuable monograph of Dr. N. S. Davis on Medical Education. Here is set forth the early deliberations leading to the creation of the American Medical Association though much is said both in the preliminary Conventions and the Proceedings of the first years of the American Medical Association as well as in the author's comments and suggestions of the medical subjects taught in the 37 medical schools then in existence in the United States. No mention is made of Public Health or the scientific prevention of disease. As a subject it does not appear in any of the curricula; nor is it even hinted at in the critical

examinations of the medical teaching of this notable period which marked the beginnings of our great medical organizations, both state and national.

In 1864, written during the midst of the Civil War, Chew's monograph entitled "Lectures on Medical Education" appeared.<sup>4</sup> In his chapter on medical schools, though he emphasizes the various sciences, especially Anatomy and the Clinical and Hospital Services, as well as many other pertinent topics, nothing is said concerning sanitation or disease prevention even though all about him (these Lectures were written in Baltimore) the soldiers in the military camps were dying by thousands of preventable diseases.

Following the Civil War was prepared the monumental work "Medical and Surgical History of the War of the Rebellion" published during the seventies. These volumes were replete with medical and surgical data presenting every possible phase of preventive medicine and health problems. They have been an inexhaustible source of material for the later studies of the Pasteur-Lister era which were about to revolutionize the medical world.

In this connection it should be said that the experience gained by physicians in all matters dealing with sanitation in the armies during the war did much to direct their attention to these problems when they returned to their homes where conditions relative to sewage disposal, care of food, water, etc., were still most unsanitary.

In 1876 before the Centennial International Medical Congress in Philadelphia, Dr. Henry I. Bowditch delivered his famous discourse on "Public Hygiene in America" (Little, Brown and Company, Boston, 1877). He exposed the deplorable sanitary state of the nation as it had never been done before and through his pointed questionnaire revealed conditions so alarming that both the public and the medical schools were thoroughly aroused. From this time dates the real beginning of Public Health in this country. The creation of Boards of Health by the states, counties and cities was given a new impetus.

As Bowditch's questionnaire reveals, almost no work in preventive medicine was offered at this time in medical schools. In only three, namely Miami Medical College, Ohio-Jefferson

3. *Nature in Disease*, Jacob Bigelow. Page 97. Boston, 1859.

4. Samuel Chew, M. D. Philadelphia, 1864.



Medical College and the University of Pennsylvania were courses given worthy of mention and these consisted chiefly of lectures. Progress in teaching Hygiene and Preventive Medicine in the medical schools on the whole lagged behind the work in Health Departments.

As to progress in research and teaching of preventive medicine, the Spanish American War was the most momentous occasion in our history. It came at just the right moment, 1898, to furnish an opportunity for the application of newer methods and the testing of the accumulated discoveries of the bacteriological era. Unfortunately, though most of the facts concerning the control of the prevalent diseases were known, they were not applied until thousands of soldiers were sacrificed by typhoid fever. The work of the Typhoid Commission consisting of Reed, Vaughan, and Shakespeare, appointed at this time to investigate the health conditions of the military camps, deserves a prominent place in the progress of sanitary science. Soon thereafter followed the work of the Yellow Fever Commission in Cuba and that of Gorgas at Panama.

These contributions directed the attention of everyone interested in medical affairs to Public Health as it had never been done before in our history. An impulse was given to health work in such a practical way, both in the field and in education, that the place of preventive medicine in medical curricula became not only more firmly established but definitely enlarged. It had become a very practical field, an applied science, whose value could be so dramatically proved to everyone that there was no room for argument.

The formal courses in Bacteriology introduced into medical curricula in the eighties and nineties inaugurated the basically scientific programs in preventive medicine in medical colleges. At first these courses largely involved sanitary problems and control measures to prevent infectious diseases. Soon their scope was enlarged to comprehend related problems of personal and public hygiene, toxicology, engineering, the control of food supplies, milk, water, air, sewage, etc. Thus nearly every disease furnished its preventable aspects creating a vast field in some respects far more extensive than curative medicine. To meet this situation, some 15 to 20 years ago in this country the Public Health

Schools began to be created thus removing from the medical curriculum at least some of the responsibility for teaching a field that had rapidly become in many ways an extreme specialty.

While the necessity to revise fundamentally our medical curricula became increasingly evident during the period from 1890 to 1910, progress was slow in many colleges. Matters were brought to a head, as it were, by the American Medical Association through the creation of the Council on Medical Education. During this period (1908) under a grant from the Carnegie Foundation the survey of medical schools conducted by Abraham Flexner was initiated. Without entering into detail, it may be said that our so-called model curriculum was formulated, each of the various subjects being evaluated and given a place in the curriculum and the time devoted to each subject expressed within definite percentage limits. That allotted to Public Health and preventive medicine at present is 4 per cent. of the entire time allowed for undergraduate work.

From time to time slight modifications in this curriculum have been made by the Council. Naturally some of the colleges have introduced certain special courses in this field. Every clinical branch in presenting its subject matter has increased the time and emphasis devoted to its preventable aspects. This is true even of the fundamental branches. An interesting book has been issued from the Harvard Faculty devoted to the preventive aspects of every subject in the medical curriculum.<sup>5</sup>

The amount of time and emphasis thus broadly devoted to preventive aspects in all departments has had a wholesome effect on the attitude of teachers and through them upon students. It is one of the most encouraging indications of practical progress in this field at the present time.

Now what of the future? Even allowing for such changes and advances as already recounted, it recently became increasingly evident to the Council and to the Association of American Medical Colleges that the Curriculum needed revamping and especially in matters relating to preventive medicine, public health, personal and mental hygiene, psychiatry, etc.

The purpose and intent of the survey of medical colleges now being made has been set forth

5. Warren. *Synopsis of the Practice of Medicine*, Cambridge, Massachusetts, Harvard University Press, 1929.

by President Wilbur, Chairman of the Council, as follows:

"We think that a complete restudy will be helpful in giving emphasis to mental hygiene, psychiatry, public health, public therapy, and the social and economic aspects of medicine. Psychiatry, public health and the social aspects of medicine have become just as essential in the life of the doctor of today as the training in the classification of the white blood corpuscles. It is evident that a study will make it easier to push into the graduate school the over-emphasis on the specialties that has taken place in many institutions due to various causes, particularly the outstanding ability and personality of the heads of these special departments. . . . We have thought for so long in terms of curative medicine that it is difficult even for us in the medical schools to make room for preventive medicine. . . . A part of our program here will be to see what we can do to bring into medical teaching the new changes that have come into medicine with the extension of public health and personal hygiene."

The present would seem to be the opportune time to inaugurate the suggestions presented in this terse statement. There are three pertinent reasons therefor. First, the people are becoming more and more health minded. Slow and negligent as the public is at times regarding personal and public health, on the whole tremendous progress has already been made. We do not anticipate opposition to health measures at least when the general public can understand them as we did even a few years ago. Opposition to health laws based upon personal and private advantage or gain is becoming less and less significant, however flagrant certain individual examples appear.

Second, a relatively large personnel of men and women have now been created who are engaged in field work in every state in the country. We have not as yet enough adequately trained men and women, nor are health budgets adequate. But the health forces at work are now so numerous and influential and have proven themselves such a necessary part of the body politic that they have become stable and permanent institutions in every community.

Third, educational institutions from the grade schools to the universities are not only devoting more and more attention to prevention of disease but are doing so in a more intelligent way.

These basic reasons furnish an adequate argument for the promotion and added emphasis given to preventive medicine both in medical colleges and in Public Health Schools. There

must be a competent personnel. This must consist of men and women trained in medical colleges and in Public Health Schools; also of properly trained public health nurses. Our curricula therefore must be formulated to adequately train these three general groups.

An advanced or postgraduate health curriculum deserves mention. It will not be long before it will become a part of the program of every state. Counties and cities, too, will become active. The state of Massachusetts and Wayne County, Michigan, may be taken as examples of what already has and is being done. Other states and communities are active in the promotion of preventive work by the more efficient training in one way or another of practitioners through health clinics, lectures, demonstrations and field work. Here is a real opportunity for physicians to enlarge their field and aid themselves both economically and educationally through more intimate cooperation with trained health officials.

#### DISCUSSION

Dr. John Neal, Springfield: This is the most interesting paper on this subject that I have ever heard. You might wonder why I should have any interest or why I came down. This is one paper in the Section that I came to listen to. As I say, it might be of some wonderment to you why I should not be actively engaged in the public health field but for a few years I have been secretary of the medical examining board of the State of Illinois. Odd as it may seem, the greatest percentage of failures is on this, as so many of the students believe, non-essential subject, the subject we are talking of now, preventive medicine and sanitary science. Probably the fault is not entirely the students'; probably the schools haven't put the emphasis they should upon this particular subject. In making a physician, obviously it is a very complex process and he is forced to interest himself, as a student, in a good many different subjects that he personally isn't going to follow. Probably preventive medicine is one of them, although no one can fail to incorporate it into his general knowledge, be he surgeon-wise or going to follow the path of another one of the specialties. I feel that it is comparable probably to an automobile. We think of the automobile as a going affair but there is a little spring down in the distributor box not any bigger than an inch long and about the size of the lead in your pencil and your automobile does not go without that.

Now, the physician can not go unless he has a broad view of just these things. This paper is historical; I think it is a fine thing. If I had anything to do with the faculty of any medical college I would advocate that every student sometime in his course read this paper because it is in my opinion very valuable. Now, I just listened to what the State Health Department is



doing. Most of you are engaged in this particular line of endeavor. So that I am most interested in coming and listening to this paper to learn if possible the reason why so many students, and brilliant students, come before our medical board, where we fail them, because no doubt sufficient emphasis is not placed on the importance of this subject. We are quite well aware of the fact they are all not going into this particular specialty but we feel all students, to be rounded out, should certainly know more about preventive medicine and sanitary science than a great many of them do.

I want to compliment Dr. Davis and to thank him very much for the privilege of listening to his paper.

## THE ROENTGEN DIAGNOSIS OF INTRACRANIAL LESIONS

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Intracranial lesions present an important field for roentgen study, first, because the diagnostic possibilities of detecting and localizing them by this method of examination still leave much to be desired and secondly, such findings as have been demonstrated as being of value relative to them may advantageously be checked by further observation. This paper is based upon studies of 63 verified cases from the service of Dr. Eric Oldberg seen during the past 4 years at the Research and Educational Hospital of the University of Illinois. In it both the roentgen findings on the ordinary examination and the information ventriculography or encephalography afforded will be presented, as well as statistical data derived from these findings.

Before proceeding with our own observations, a brief historical review of the literature seems pertinent. Oppenheim<sup>1</sup> in 1899 was the first to describe the effects of intracranial neoplasms on the skull as visualized by the roentgen ray. Church<sup>2</sup> in 1899 and Mills & Pfahler<sup>3</sup> in 1902 reported cases with uncalcified tumors which they were able to recognize on roentgen plates. Lichtheim<sup>4</sup> noted the first intracranial calcification in connection with a gumma and Fittig<sup>5</sup> in 1902 made the first observation of a calcified glioma. Since then the literature has been rich in observations of the direct signs of brain tumors and some of these will be summarized later. Schüller<sup>6</sup> in 1918 called attention to pineal dis-

placement by pressure or traction as a possible localizing aid.

Dandy<sup>7</sup> added a new chapter to the roentgenological diagnosis of intracranial lesions by the introduction of pneumo-ventriculography and encephalography in 1918 and 1919 respectively. These procedures opened up new possibilities, not only in the detection of tumors in the large "silent" frontal areas but also permitted a much more accurate localization of tumors whose general position was known from other signs. The method was particularly valuable in the differentiation of lesions around the third and fourth ventricles. Forrestier<sup>8</sup> and Frazier and Glaser<sup>9</sup> have attempted to obtain similar information by mixing radio-opaque solutions with the cerebrospinal fluid, but to date, the results have not been nearly as successful as those with air replacement. Moniz<sup>10</sup> in 1927 introduced arterial encephalography as an aid to localization by the injection of sodium iodide into the carotid artery. While valuable information may be obtained with it, simpler procedures usually suffice in the cases where this method seems most applicable.

Roentgen findings in connection with intracranial lesions, described by most writers as "direct" signs, are as a matter of fact direct in only a small percentage of cases. Calcification within such lesions is practically the only evidence by which they may be consistently recognized directly. This, according to Weed<sup>11</sup> may be found microscopically in about 40% of all intracranial tumors (excluding tuberculosis and syphilis) but it is present in amounts sufficient for roentgenographic demonstration in only a small proportion of them. Camp<sup>12</sup> found it in only 7.6% of 781 verified tumors and he quotes Crouse's findings at 3% and Dandy and Ströms, at 6%. Such localizing calcifications occur most commonly in craniopharyngiomas, meningiomas, blood vessel tumors and gliomas. When present, they must be differentiated from non-pathological calcifications such as occur in the pineal gland, choroid plexus, falx and pacchionian bodies. Occasionally a pinealoma may be indicated by extensive calcification in the young as in one of our cases.

Most of the signs noted in connection with intracranial lesions are of a secondary nature and it would be more correct to designate them as

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"indirect." They are of many kinds and some of them are sufficiently characteristic to be of localizing value. Bone erosions may be localized or generalized. The former are caused either by involvement of the bone by the tumor as in the case of meningiomata or by pressure contiguity as occurs when acoustic neurinomata erode the petrous ridge. The erosion may be into a paranasal sinus, or canals harboring tumorous growths may be distended or distorted as occurs when optic gliomata invade the optic canal. Generalized erosion of the cranium, evidenced by so-called "digital" markings or convolutional atrophy on the inner table of the skull, may be the result of a large, slow-growing tumor but it is usually due to an internal hydrocephalus secondary to a blockage of the cerebrospinal fluid flow by a tumor in the vicinity of the third or fourth ventricles or the aqueduct of Sylvius. With this finding there is often an associated erosion of the clinoid processes and posterior wall of the sella turcica which must be carefully differentiated from the changes caused by an intrasellar growth.

With pituitary tumors, the changes are essentially in the nature of a pressure expansion. The walls are thinned and ballooned out, the anterior clinoids are displaced upward, the floor downward and the posterior wall backward. Erosion of parts of the boundary may occur.

The sella may also show changes in the nature of a flattening from pressure of a craniopharyngioma; forward displacement of its posterior wall may be caused by posterior fossa tumors. In either of these conditions erosion of the clinoids may also be present.

In the young, increased intracranial pressure with intracranial lesions may cause diastasis of the sutures with enlargement of the head instead of producing the other signs commonly noted in adults.

Bone condensation usually follows direct involvement by meningiomata and may be very extensive. According to Cushing<sup>13</sup> invasion by the tumor causes irritation with subsequent osteoblastic proliferation which provokes the hyperostosis. Kolodny<sup>14</sup> believes proliferation of bone precedes the infiltration of the skull by tumor cells and is the result of associated blood vessel changes. He states that infiltration of the bone by tumor cells takes place subsequent to the commencement of the formation of new bone;

it leads to bone destruction and occasionally to complete perforation of the skull.

Findings associated with localized blood vessel dilatations are occasionally of diagnostic value, especially if they are in agreement with the clinical manifestations. Developmental variations may produce similar changes. Angiomata in or near the bone usually present fairly characteristic signs of this nature. According to Elsberg and Schwartz,<sup>15</sup> in 50% of the meningiomata there is seen either unilateral accentuation of the arterial markings or "laking" of the venous channels which is helpful in the diagnosis.

Localization of a tumor may at times be possible even in the absence of all direct or indirect signs on the ordinary roentgen examination, by noting displacement of a calcified pineal gland. Naffziger<sup>16</sup> elaborated upon this finding, first mentioned by Schüller, and laid stress upon the lateral pineal shift in connection with unilateral lesions above the tentorium in cases with increased intracranial pressure. Where such pressure is increased but equal on both sides, as with internal hydrocephalus occurring with lesions of the posterior fossa, no such shift occurs. Vastine and Kinney<sup>17</sup> found calcification of the pineal in 59.2% of all individuals over 20-years of age and in a study of 123 tumor cases which they investigated they were able to demonstrate pineal displacement in about 43% of them.

When the findings, both on the ordinary roentgen examination and neurological investigation fail to verify the presence or determine the location of a lesion, ventriculography or encephalography may give the required aid. By replacing the cerebrospinal fluid with air, either by way of ventricular tap or lumbar puncture, the fluid channels may be outlined roentgenographically and variations from the normal noted. Dilatation, partial or complete obliteration of the ventricles or subarachnoid spaces, or displacement of the ventricular shadows, permits of certain deductions relative to various types of lesions.

With encephalography, most of the air enters the subarachnoid spaces and only a moderate amount reaches the ventricles. This method is of special value therefore in showing congenital cortical aplasias and atrophies, acquired pressure atrophies and adhesive conditions of the meninges. Occasionally a case of epilepsy, either limited to or starting with Jacksonian seizures, reveals a lesion by this method. Rarely the uni-



lateral obliteration of cortical markings may disclose a tumor.

Ventriculography by either uni- or bilateral tap is usually resorted to in suspect tumor cases to secure good filling of the ventricles with air. In rapidly growing tumors of the cerebral hemispheres, the ventricles may be so compressed that they cannot be located. Normal ventriculograms ordinarily rule out a space-occupying lesion but according to Pilcher and Wilson<sup>18</sup> this finding is not absolute or infallible. Obliteration of part of the shadow of an air-filled ventricle usually represents a tumor pressure filling defect but may be simulated by incomplete filling due to faulty technique. Lateral displacement or compression is also a valuable finding in connection with localization. Generally speaking, if one of the lateral ventricles is partially or completely obstructed, the opposite lateral will dilate. With tumors obstructing the ventricular system below the foramina of Monro, both laterals will dilate equally, the anterior horns and body more than the inferior horns. Occasionally a third ventricle block can be conclusively shown by successive right and left ventricular taps, as in one of our cases. Usually bilateral dilatation of the laterals with visualization of the third ventricle is presumptive evidence of a posterior fossa lesion. If the fourth ventricle can be visualized, the condition is probably the result of an inflammatory closure of the foramina of Magendie and Luschka or a chronic arachnoiditis with obliteration of the subarachnoid spaces. A marked internal hydrocephalus often results from these conditions.

Accurate deductions from both plain films and air injection studies are largely dependent upon proper technique in the making of the films. Stereoscopic exposures in the anteroposterior, posteroanterior and both lateral directions constitute the ideal procedure, but direct sagittal views in both directions and stereoscopic laterals should be the minimum requirement. Interpretation of the films should be made preferably with the cooperation of the neurosurgeon or at least with a knowledge of the detailed history of the neurological findings. As has been aptly stated by Heuer and Dandy<sup>19</sup> findings which appear significant to the roentgenologist may be minimized by the clinical signs and contrarily minimal changes may assume diagnostic value in view of the probable neurological localization.

In 1916 Heuer and Dandy<sup>20</sup> compiled statistics relative to findings on plain films in connection with brain tumors which compare well with more recent reports. Analysis of 100 cases by them revealed that about 45% of them gave general information as to the presence or absence of an intracranial tumor. In only 6% was visualization possible from intratumoral calcification. In 9%, the tumors were localized because of erosion into the paranasal sinuses. Hyperostoses in the region of the tumor were noted in 4% and in a similar number, there were unilateral vascular changes of a destructive nature. In 2% there were diagnostic localized bone atrophies or erosions.

Sosman<sup>21</sup> in 1927 reported 1,007 cases of gliomas, pituitary adenomas, craniopharyngiomas, meningiomas and acoustic neurinomas from Cushing's clinic, constituting 88% of all the cases. He was able to localize 37% of them by the plain roentgen films and stated that there was about a 50% chance of determining the presence or absence of an intracranial tumor by use of all of the direct signs.

Relative to ventriculography, Grant<sup>22</sup> in 1923 reported 40 cases, in 37% of which the method gave exact localization with verification. In an additional 20% localization was made but not confirmed. In 10% the method was misleading, due to either errors in technique or interpretation, and in 7½% tumor was apparently ruled out. In 1925 Adson et al<sup>23</sup> reported 30 cases, explored on the basis of ventriculographic findings. In 24 (80%) the location was verified, in 4 (13%) it was not verified, and in 2 (6%) it was misleading. Grant<sup>24</sup> in 1925 reported on 392 cases of ventriculography done by members of the Society of Neurologic Surgeons. In 311 (79.3%) the method was of localizing value. In 31.6% of all cases, it confirmed the neurological localization, while it gave localization in 23.7% when neurological findings had failed to indicate the site. 44 cases (11.2%) of this series had removable tumors which were localized solely by the ventriculogram.

The cases observed by us consisted of 29 gliomas, 7 meningiomas, 6 acoustic neurinomas, 5 pituitary adenomas, 3 craniopharyngiomas, 3 blood vessel tumors, 4 brain abscesses and a miscellaneous group of 6 cases including a pial fibroma, a pinealoma, a porencephaly, a ruptured cerebellar cyst and two tumors of the third ven-



tricle in which the histological diagnosis is uncertain. Of the 63 cases, 36 (57.1%) showed diagnostic signs on the plain roentgenograms; 19 of these (30.1% of all) presented direct localizing findings. In the others, such indirect signs as pineal shift or convolutional atrophy were present.

Of the various groups, 11 of the 29 gliomas showed definite and 3 questionable findings of an intracranial lesion. Four of the 6 acoustic neurinomas, 3 of the 7 meningiomas and all of the pituitary adenomas, craniopharyngiomas and blood vessel tumors presented diagnostic roentgen signs. None of the brain abscess cases showed changes on the plain films. In the miscellaneous group 4 of the 6 cases showed findings.

As regards the nature of the various findings, calcification was seen in the pial fibroma, 2 of the 3 craniopharyngiomas and 1 of the 7 meningiomas; a total of 6.3%. Hyperostosis was seen in one sphenoidal ridge meningioma (1.5%). Localized bone erosion was noted in all of the pituitary adenomas; the sella was eroded by the 2 aneurysms of the internal carotid and the 3 craniopharyngiomas; the petrous ridge by 4 of the 6 acoustic neurinomas (22.2%). Localized blood vessel changes were found in the angioma case and in 1 of the meningiomas near the vault (3.1%). Increased intracranial pressure, as evidenced by convolutional atrophy, was noted in 1 of the 5 pituitary adenomas, 5 of the 29 gliomas and 2 of 6 lesions in the miscellaneous group (12.6%). Sellar erosion on the basis of secondary pressure was seen in 8 of the 29 gliomas and in the pinealoma and the porencephaly case (15.8%). Diastasis of the sutures was present in one case, a glioma of the vermis in a girl 9 years old.

In 29 of the 63 cases ventriculography was done. 25 of these (86.2%) gave localizing evidence; in 4 (13.7%) the findings were indefinite. 19 of the cases where this procedure was used had shown no signs of an intracranial lesion on plain films; 17 of these gave localizing information. Of the 15 which showed evidences of intracranial pathology by either convolutional atrophy or erosion of the posterior clinoids but no localizing signs, 9 had ventriculograms and 8 of these were of localizing value. 3 cases gave evidences of tumor by ventriculography when neither the ordinary roentgen nor the neurological examination gave information of such a lesion.

Encephalographic studies of a considerable number of mental defectives and epileptics have been made by us but they are not included in this paper because practically none of them gave findings on the ordinary roentgen examination or revealed changes after the air injection which offered much from surgical interference. Inasmuch as such changes as were noted were not confirmed, they are of little value from a statistical standpoint.

In summarizing our findings, it would seem that our observations closely parallel those recorded in the literature. 57.1% of our cases gave evidences of an intracranial lesion on the ordinary roentgen examination and in 33.2% of them this information was of localizing value. Ventriculography served to give definite localizing findings in 86.2% of the cases in which it was done, including 27 cases where the plain film findings were negative and 15 cases where such findings were only of a general nature. Of the 63 cases, 46 (73%) showed roentgen evidence of an intracranial lesion by either the ordinary roentgen examination or ventriculography.

In conclusion, it might be well to emphasize the fact that with intracranial lesions, perhaps to a greater extent than with other roentgen diagnostic procedures, accurate interpretation requires close coordination with the clinical findings. Negative findings usually have no significance; positive ones have value only to the extent to which they agree with neurological findings or at least where there is no definite discrepancy. Ventriculograms particularly require special skill in correct interpretation; technical errors may give false impressions. With these limitations in mind, roentgenology certainly is a most valuable aid in the diagnosis of intracranial lesions and one which should be utilized in every suspected case.

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## DISCUSSION

Eric Oldberg (Chicago): As an adjunct to Dr. Hartung's paper I shall attempt very briefly to discuss the important points of interest in x-rays of the skull as far as the neurosurgeon is concerned.

The minimal x-rays necessary to the neurosurgeon are anteroposterior, posteroanterior and lateral stereo plates of the skull, the latter being taken with the suspected side down, if this is possible. In addition to these views certain types of lesions may demand extra views, such as plates of the optic foramina or of the internal acoustic meati.

In examining skull plates the neurosurgeon first looks at the vault to see whether or not there are generalized signs of increased intracranial pressure, manifested, of course, by digital markings. In addition to this the pineal body is always looked for since calcification in this gland often renders it visible. When a lateral cerebral lesion of any size occupies the cranial cavity the pineal body is very likely to be depressed to the opposite side, a valuable diagnostic sign. In addition to the above factors, the vault should also be carefully examined for endostosis, erosions, and areas of increased vascularity.

The base of the skull is then considered by the neurosurgeon, I think usually in a rather definite and logical

order. The sella turcica is first inspected and enlargements or erosions of it are evaluated. It should be remembered that generalized intracranial pressure as well as a localized pituitary tumors may enlarge the sella. Pituitary tumors balloon out the sella and rarely produce any changes elsewhere in the skull. Generalized pressure, on the other hand, enlarges the sella markedly but pressure erosion does not have the typical ballooned out appearance; in addition to which there are usually signs of pressure elsewhere in the skull.

The next regions to be examined carefully are the sites of predilection for the growth of meningiomas. These are usually the olfactory grooves, the sphenoid ridges, and the tuberculum sellae. The base should also be carefully examined for erosions such as those sometimes produced by malignancies arising in the sphenoid sinuses or by long-standing acoustic tumors, as they lie on the petrous ridge.

It goes without saying that occasional tumors may be calcified and thereby accurately localized within the cranial cavity, particularly in the stereo plates. Care should be taken not to confuse these, however, with calcification in the choroid plexus, a frequent finding.

In the above brief statement I have tried to give you a rapid survey of about what is in the mind of a neurosurgeon when he examines the x-rays of the skulls of his patients. X-ray in this particular field is one of the most important adjuncts to proper diagnosis and is for that reason indispensable in every case. If plates are methodically examined in each case, just as one makes his methodical neurological examination, it will be found that positive and often diagnostic evidence will be present in a high percentage of patients.

## EPIDEMIC PLEURODYNIA IN ILLINOIS

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Several outbreaks of epidemic pleurodynia have occurred in the Atlantic Coast States from North Carolina to Massachusetts. One epidemic has been reported from Knoxville<sup>1</sup> in the Appalachian Mountains of Eastern Tennessee. This is near the borders of Virginia and North Carolina, and river valleys from each of these states extend into the vicinity in which the epidemic appeared. The epidemic which we are describing is the first reported in Illinois,<sup>2</sup> and we can find no records of other epidemics west of the Appalachians. During this outbreak we have seen 72 patients with this disease. One of these was a resident of Indiana, the others lived

<sup>1</sup>Read before Section on Public Health and Hygiene, Illinois State Medical Society, Rockford, May 22, 1935.



in Illinois. According to conservative estimates at least five hundred residents of Lawrence County had the disease during July and August, 1934. Many others living in the counties North and South of us, and across the Wabash in Indiana, had the disease during this epidemic.

Epidemic pleurodynia has also been reported under various names in several European countries.<sup>3</sup> Daae reported it from Norway in 1872. In 1874 Finsen reported epidemics which he had seen in Iceland in 1856, and 1863.

It also has been reported from Sweden, England, Denmark, Finland, Portugal and Germany. Dabney<sup>4</sup> described the first American epidemic in 1888. He was unaware of the European reports. Since that time epidemics have again appeared in Virginia and also in New York, Pennsylvania, New Jersey, Massachusetts, Tennessee and North Carolina.

The typical case of epidemic pleurodynia is not difficult to recognize but it is easily confused with other diseases. In atypical cases the diagnosis is difficult and errors often lead to unnecessary surgical interference. The disease may also be mistaken for such serious conditions as angina pectoris, or coronary occlusion, thus causing needless alarm. The incubation period in our series was from three to seven days. In some of our patients the probable source of infection could be very accurately determined. The average case starts very abruptly and without premonitory symptoms. An acute pain appears in the region of the diaphragm, lower thoracic wall, or epigastrium. If in the latter region it may extend downward over the abdomen. Some distension may appear in the epigastrium. The pain is often limited to one side but may appear simultaneously on both sides. At times it is very severe and in such cases the patient has a pinched facial expression and bends forward in an apparent effort to limit thoracic expansion while breathing. The respiration is rapid and shallow, children often having a pronounced expiratory grunt. Headache is noted in half the cases and some have backache. Others complain of pain in the shoulders. The fever rises rapidly after the pain appears and soon reaches 101-104 degrees. The pulse rate is proportionate. A few of our patients had nausea and some vomited. The pain and fever accompanying this initial paroxysm nearly always disappears within twenty-four to thirty-six hours, and profuse

sweats may occur as the fever subsides. After the paroxysm is over the patient feels weak and exhausted and may complain of muscular soreness in the region involved. After one or two days of relative well-being a second paroxysm of pain and fever may appear. This is milder than the first and does not last as long. Rarely a third one occurs. During the second paroxysm the pain may return to the same region as before, or may shift to the opposite side of the body, if limited to one side during the onset of the illness. After the disease is over the patient is weak but otherwise none the worse for his experience. The average duration of the illness is from three to seven days. Most of the victims agree that the "Devil's Grip" is a very appropriate name for the disease. About one-half of our patients had two or more paroxysms.

The physical findings during the illness are usually unimportant. Throat symptoms are mild if present at all. As a rule nothing can be heard in the chest. The heart rate is moderately increased. Gastrointestinal symptoms are usually mild but in some cases are severe enough to be misleading. There may be some abdominal distension and tenderness in the abdominal muscles. There was tenderness in the intercostal muscles in most of our cases. Swelling in these muscles has been reported but we saw none in our patients. The urine showed nothing abnormal. There was very little change in the blood picture. The total white count was not far from the average and the differential counts showed no changes of importance.

This disease has always appeared during the summer months. The epidemic which we have studied started suddenly during the first week of July, 1934, and disappeared almost as quickly during the last week in August. It attacked both sexes and all ages, from ten months to seventy years. It was most common in children and young adults. The cases were equally distributed throughout the urban and rural populations.

The organism which causes the disease is unknown. The consensus of opinion is that the infection is spread by contact, but there is a possibility that insects may play a part in its transmission.<sup>5</sup> In the present epidemic the disease has followed the valleys of the Wabash and its tributaries in Illinois and Indiana. It appeared during the season when mosquitoes are



most active. If it is carried by mosquitoes, several genera may play a part in its transmission, as the disease has a wide geographical distribution. It somewhat resembles dengue, a mosquito borne disease, but dengue is carried by the *Aedes Aegypti* mosquito which does not live in many places in which epidemic pleurodynia occurs. During the first Virginia epidemic, Dabney<sup>6</sup> saw four children in one family with epidemic pleurodynia. All of these children had dengue in Texas during the preceding year. Green<sup>7</sup> states that the infection is not carried by water, milk or food. He believes that it is contagious and that quarantine will control it. Crone and Chapman<sup>8</sup> injected whole blood from a patient who had been ill for four days into a volunteer without causing the disease. Callaway<sup>9</sup> states that repeated blood cultures were negative in his patients, no plasmodia were found and that stained smears, dark field examinations and supravital staining methods showed nothing. Small<sup>10</sup> described a plasmodium which he found in the red cells of two patients who had the disease during the epidemic in Philadelphia, which was reported by Torrey in 1924.<sup>11</sup> In this series we have examined blood smears in twenty-four cases and have failed to find any microorganism of any kind. In fourteen of these cases the blood smears were also studied by Shaughnessy,<sup>12</sup> of the Illinois Department of Public Health, with negative results. Thus far no one has been able to confirm Small's findings.

The morbid anatomy of this disease has not been studied. The possibility of a regional muscle or nerve involvement or a serositis must be considered. Armstrong and Payne<sup>13</sup> and also Small<sup>14</sup> think that the fleeting character of the symptoms precludes the possibility of an ordinary inflammatory process in these structures. However Hans Hecksher<sup>15</sup> believes that a serositis accompanies many of the cases, often taking the form of a basal pleuritis, which makes it difficult to detect. He also says that the pleural friction sounds may appear several days after the onset of the disease. This may explain why this condition, if present, may be easily missed, as these patients are usually seen by the physician during the early painful period of the disease. Hecksher<sup>16</sup> also saw one patient in whom a pericarditis occurred.

Complications are rare. One of us saw an orchitis which appeared in a few days after the

initial paroxysm. No sequelae of importance were noted.

The diagnosis is easy in the typical case if the characteristics are kept in mind. It occurs in epidemics. The onset is very sudden. The pain is severe and has a rather definite location. The initial paroxysm usually lasts about twenty-four hours. After feeling reasonably comfortable for a day or two the patient may have another paroxysm. One must remember that it may be confused with influenza, pleurisy, herpes zoster, angina pectoris, coronary occlusion, and diseases associated with upper abdominal pain, such as peptic ulcer, gall bladder disease, appendicitis, etc. In the South dengue may cause confusion, but its initial paroxysm lasts longer, and a rash appears on the third or fourth day. We saw no skin eruptions of any kind during this epidemic. Two patients were sent to the hospital with the diagnosis of appendicitis. An alert surgeon who knew of the epidemic made the correct diagnosis and avoided operations. In a series of thirty cases of the disease treated in the Massachusetts General Hospital, two were operated on for appendicitis and one for a suspected perforating duodenal ulcer. The abdominal organs were normal in all three cases. In the same series preparalytic poliomyelitis was twice suspected (both had abdominal pain, headache, and slight stiffness of the neck) and in other cases angina pectoris, pericarditis, ureteral and gall-stone colic were considered as possibilities.<sup>17</sup> These atypical cases are often severe and need further study.

The prognosis is excellent and the treatment is purely symptomatic. Strapping the chest helped a few of our cases by limiting muscular activity, but in other cases it gave no relief. Quinine has been recommended but it is difficult to evaluate the curative action of any drug in a disease of this type. Richter and Levine<sup>18</sup> call attention to the fact that when a diagnosis of epidemic pleurodynia has been made the patient should not be discharged as cured without careful observation. Failure to observe this rule may cause one to miss an early tuberculous pleuritis, or other serious disease.

#### REPORT OF CASES

Case 1. E. B., a healthy white male, aged 41, became ill very suddenly August 5, 1934, while on train returning to his home from St. Louis. One of his chil-

dren had epidemic pleurodynia five days before this. E. B. had a severe pain low down on the left side of the thorax. Breathing was difficult. He had a short chill after reaching home, following which the fever reached 102.5. The pain was severe during the night and continued through the next day, the fever remaining about the same. During the night of August 6 the pain and fever disappeared and he perspired freely. The muscles in the lower thoracic wall and upper abdomen were sore on August 7 but there was no pain or fever. On August 8 the pain recurred with some rise in temperature, but it was not nearly as severe as it was during the first paroxysm. He was weak, nauseated, vomited once and was dizzy, the second paroxysm lasting twenty-four hours. After this he complained of weakness and had night sweats for three nights.

This is a typical case. Two cases occurred in this family. In some families we saw three or four cases.

Case 2. Mrs. W. W., a widow, aged 63. History of toxic goiter, auricular fibrillation, and arteriosclerosis of several years' standing. Recently health had been much better, and she was doing her own housework. On August 4, 1934, she was feeling as well as usual and did a small washing. While hanging it on the line she had a sharp pain in the region of her heart. Suspecting a heart attack, she immediately called one of us. Within an hour after the onset of pain the fever was 103 and breathing was very painful and difficult. Her chest was strapped, with some relief. Physical findings were negative so far as present illness was concerned, other than tenderness over the intercostal muscles. The blood count was normal. Within twenty-four hours the fever subsided and the pain left. After feeling better for a day, she had another paroxysm, which involved the right side of her chest.

Such a pain, in a patient with a previous history like this, leads one to suspect coronary disease. The subsequent course, with the pain shifting to the right side, confirmed the diagnosis of epidemic pleurodynia.

Case 3. E. L., a healthy boy, aged 10. Attack started suddenly, August 4, 1934. Pain in epigastrium, vomiting, severe headache, and stiffness in the neck. Fever reached 104. Some type of meningitis or preparalytic poliomyelitis was suspected. The blood count was essentially normal. On August 5, about thirty-six hours after the onset of the illness, the pain and fever subsided and the boy was much better. On August 7, another paroxysm appeared and lasted about twenty hours. No spinal puncture was done, as the true nature of the disease was suspected when the fever dropped suddenly and the pain disappeared after the first paroxysm.

Case 4. E. P., a healthy boy, aged 8. Attack came on abruptly on July 3, 1934. Pain in epigastrium with some distension. The face was pinched and the child bent forward, and made pressure over the upper abdomen and lower thoracic region with his hands. The breathing was rapid with an expiratory grunt. The fever was 102. Nothing could be heard in the chest. The blood count showed no leucocytosis. The abdominal muscles were tender in the epigastrium but there was no true rigidity and no soreness over the ap-

pendix. However, an early appendicitis or a pneumonia was suspected. The boy vomited, after which he seemed much better. The pain persisted, but he was much improved by the morning of July 4, and during the next twenty-four hours he was very comfortable. On July 5 another paroxysm occurred. This was much milder than the first and his recovery was rapid.

In the last two cases we see examples of the atypical forms which the disease may assume. In each the diagnosis may be questioned. However, the occurrence of a second paroxysm in each, along with other suggestive symptoms, during an epidemic when many other typical cases were present in the vicinity, leads us to believe that the diagnosis is correct. We hope that these unusual and very confusing types will be carefully studied when future epidemics appear. To mistake one of these cases for some acute surgical condition leads to needless surgery. To decide that some urgent surgical disease is epidemic pleurodynia, may rob a patient of all chance of recovery. Either mistake may easily happen during an epidemic.

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#### DISCUSSION

Dr. John J. McShane, Springfield: Dr. Kirkwood and Dr. Stoll are to be congratulated in presenting a history of the pleurodynia cases which have occurred



in and around Lawrenceville. I must confess, frankly, that I am not in a position to discuss epidemic pleurodynia from the clinical side, as I have not seen any case of this disease. However, there are two or three points mentioned in this paper that are of interest to all of us, especially as they relate to all epidemics of pleurodynia which have been noted in literature in this country.

These epidemics always occur in the summer months of July and August. When they occur there is a sudden outbreak and most of the cases occur among children or people of the younger age groups. Another point is that most of the cases in the epidemic reported by Dr. Kirkwood and Dr. Stoll were from both urban and rural centers; however, he states that many of them were in the valley, and I am wondering whether there might be an insect vector that would be responsible for these cases, especially through mosquito transmission.

I would like to ask Dr. Kirkwood when he finishes his discussion whether he thinks that some of these cases might be possibly atypical form of dengue. I realize that there was no rash, no break-bone fever that you would ordinarily expect in a series of cases like he was reporting if the cases were dengue. He stated that a number of blood specimens were examined by him and by Dr. Shaughnessy for plasmodia and Small's findings were not confirmed.

I am keenly interested in Dr. Kirkwood's and Dr. Stoll's paper and I am wondering whether we have had epidemics of pleurodynia that have not been recognized, for I well recall when Dr. Kirkwood diagnosed his first case of tularemia, which, by the way, was the first to be reported in this state. He told me at that time he had seen cases before that he now believed to be cases of tularemia, and I recall sending to Columbus, Ohio, and obtaining some blood for Dr. Kirkwood from a former patient whom he had treated some ten years before. The blood upon examination was found positive tularemia, proving that this patient had some tularemia some ten years previous to the blood examination. So it may be possible that if cases of tularemia had occurred in Illinois for a number of years previous to the first reported case, it would seem that it is probable that cases of pleurodynia have occurred in Illinois previous to the reported outbreak of epidemic pleurodynia by Dr. Kirkwood and Dr. Stoll.

Dr. Kirkwood (in closing): Concerning Dr. McShane's question about dengue, I do not think there is any connection between epidemic pleurodynia and dengue, on account of the geographical distribution of the two diseases. Dengue is carried by the *Aedes aegypti* mosquito, which is not found in many places where epidemic pleurodynia has appeared. If the latter disease is carried by mosquitoes, it must be carried by different genera on account of its wide distribution. It may be caused by a filterable virus. No one, excepting Small, has been able to isolate an organism of any kind.

Dr. McShane: How far north has the *Aedes aegypti* mosquito been found?

Dr. Kirkwood: Dr. Davis, in the preceding paper, told us about an outbreak of yellow fever which occurred in Philadelphia, and this mosquito is not a native in that part of the country. I think that the *Aedes aegypti*, which transmits yellow fever and dengue, is supposed to have been carried into Philadelphia from the south in ships, and probably propagated there during the hot weather. This mosquito is not usually found north of the 34th parallel of latitude.

Dr. McShane: We had yellow fever up as far as Cairo and also as far as Louisville.

## THE PROBLEM OF THE ASTHMATIC CHILD

FREDERIC W. SCHLUTZ, M. D.

CHICAGO

The successful treatment of asthma in infancy and childhood forms one of the major pediatric problems in the everyday experience of the medical practitioner.

The beginning of this disease is seen in its purest form in infancy and childhood. There is, at this period, comparative freedom from physical and psychoneurotic influences which may play such a considerable part in the condition when manifested in the adult.

In only a small proportion of children does the disease persist into adult life.

The prognosis of asthma depends partly upon its severity and partly upon the duration of the condition.

Asthma has been observed during infancy. Its typical manifestation then is in the form of asthmatic bronchitis. In later childhood the true type seen in the adult is the common form.

Heredity and constitutional disposition play a great role in the etiology of asthma. If conditions allied to asthma, such as hay fever, migraine, urticaria, neuro-dermatitis, are counted in the history of the antecedents, it will be found that the hereditary element is present in over fifty per cent. of the asthmatics. Either mother or father are affected. If both are, the disease is certainly transmitted and often in very severe form. A generation may be missed and the disease may date back to the grandparents.

The asthmatic child inherits a constitution which is allergic and readily sensitized to all kinds of allergens. The hypersensitiveness may

From the Department of Pediatrics, University of Chicago.  
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also be acquired. Hypersensitive parents commonly beget hypersensitive children; but it does not follow that the sensitization is to the same substances in both.

The parents of the asthmatic child are often characteristic types—artistic, alert, high strung, and exquisitely neurolabile. The offsprings of the intelligentsia are common victims.

Asthmatic children are generally very bright, hyper alert and mentally very active.

Disorders often associated with asthma and no doubt often joined with it in etiology are migraine, cyclic vomiting, vertigo, and many forms of skin manifestations, such as eczema, urticaria, and chronic pruriginous eruptions. With the tendency of asthma to disappear at puberty, one of these other manifestations may predominate and take its place.

Related disease pictures exist in asthma. In all of them apparently a similar central nervous disturbance seems to operate which can manifest itself in variable clinical pictures depending upon the severity of the disturbance or the underlying etiological agent.

The noted German pediatricist, Czerny, aptly expressed this conception when he stated that the nervous system really determines the course of juvenile asthma.

From the standpoint of symptoms, three principal forms or types of asthma may be recognized in childhood: the asthmatic bronchitis, characteristic for the period of infancy and seen very frequently after the second year; the true asthmatic attack beyond that period and up to puberty, resembling in every symptom the adult type; the asthmatic cough, observed generally beyond infancy and characterized by a specific sound, extraordinary duration, resistance to all forms of medication, and remarkable freedom of the lungs from any inflammatory change.

Two factors should be determined in making a diagnosis of the asthmatic cough: a marked familial asthmatic taint, and the presence of any form of neurogenous skin disorder.

A striking feature of nearly all forms of asthma in childhood is their peculiar relationship to the manifestation of exudative diathesis and to neurolability of the nervous system. This is the congenital constitutional phase which colors the background of practically every asthmatic.

The neurolabile phase is particularly important. According to Czerny, the type of asthma occurring in the child, the degree of its manifestation, the probability of its transitory or permanent suppression, depend entirely upon the quality of the child's nervous system.

All evidence indicates that asthma is practically always an allergic reaction. An allergic reaction is one that is qualitatively altered from the normal of the species and is specific. There are "physiological allergies" brought about by direct contact, and spontaneous, pathological, or hereditary allergies. The latter are also designated as clinical allergies. In all of them, there is an extraordinary degree of familial occurrence. Asthma belongs to the latter type. Some allergen which initiates or precipitates the attack is fundamentally the causative factor.

The hereditary allergies may have histologic, immunologic and clinical differences. They may be divided into two types, the immediate and the delayed.

If the asthma attack develops almost immediately on contact with an allergen, i.e., pollen or horse dander or ingestion of the allergen, one speaks of immediate allergy.

When skin tested with the proper extract of the specific allergen, a positive wheal appears in a few minutes in the sensitive subject.

In contrast with the immediate allergies, there are reactions which do not begin immediately but in from two hours to two or even three days after contact with the exciting cause. These are "delayed reactions", or "delayed allergies". In subjects possessing them, skin tests with the specific substances are quite uniformly negative and immune bodies are not demonstrable in the serum. These delayed allergies account for the unsatisfactory results of tests in cases that fall in this group.

With regard to the clinical types of allergy and their relation to the skin test, it is important to bear in mind that the positive skin test to foods and air-borne substances is an immediate reaction and only occurs in those cases which also show an immediate clinical reaction.

If the skin test is negative, the allergy is of the delayed type. A negative skin test in such cases would not exclude the possibility of allergy to the test substance. Delayed skin tests to foods

and air-borne substances have no known clinical significance.

The most important predisposing cause of asthma and of practically all allergies is heredity. There is a great deal of evidence that both the immediate and the delayed allergy have a common background of inheritance. The degree and amount of inheritance will determine the age of onset of the disorder. According to Cooke 75% of the offsprings will show asthma if there is bilateral inheritance, and of this 75% over 66% will show the onset of the disease before the 10th year. With unilateral inheritance, about 50% will develop allergy and in over 31% the onset will occur before the 10th year. A specific sensitization or its clinical form is not inherited, only the tendency to it.

The question arises—what causes the development of the sensitization mechanism and what factors determine the particular allergen in a given case? All evidence seems to point to stimulation by contact as the causative factor in developing the sensitization mechanism. We do not know what factors determine the allergen. Excessive contact does not seem to be required.

The substances most commonly acting as exciting causes of the asthmatic attack may be inhaled from the air, ingested as foods, injected subcutaneously, or absorbed from foci of infection.

Inhaled, ingested and injected substances are most apt to give the immediate reactions and usually give the immediate positive skin test. In rare instances they may give delayed reactions; then the skin tests will also be negative.

Allergens derived from foci of infection are the chief cause of delayed reactions.

Sensitivity to foods is particularly common to the asthmatic in the age group from infancy to three years. There may also be sensitivity to inhalants, practically never to both. From then on to five years, they may be sensitive to both.

Food becomes relatively unimportant as a sensitivity factor after the fifth year. Then the air-borne substances are in the ascendant and the allergens derived from focal infection. Air-borne substances ranked in order of frequency as a causative allergen are house dust, ragweed, feathers, animal emanations, pollens, orris root, cotton seed, and kapok.

Food allergy almost consistently tends to dis-

appearance by or before the age of ten. This often does not mean relief from asthma because the allergy to air-borne substances dominates by that time, or becomes pronounced with the disappearance of the other. This is an almost inevitable sequence if the constitutional taint is pronounced in the case. Whereas hypersensitivity to food proteins seems to be present at birth and be gradually lost during childhood, the hypersensitivity to inhalant proteins tends to be acquired and to be very resistant to change.

In asthma due to infection, the causative factor is invariably located in the upper respiratory tract. Up to the age of five or six years the foci are generally located in the lymphoid tissue of the tonsils, the pharynx, and the nasopharynx. After this age, the para-nasal sinuses are developed enough to become local foci of infection and as the child grows older these and other head sinuses may become the chief seat of a focal infection from which the specific allergens develop.

Often many repeated upper respiratory infections precede the development of the first asthmatic attack and in some cases an attack of pertussis or of measles or of pneumonia followed by prolonged cough and recurrent bronchitis finally develops into true asthma. The organisms most frequently involved in the development of the specific allergen are the streptococcus hemolyticus and viridans, the pneumococcus, the micrococcus catarrhalis and in very rare instances the staphylococcus hemolyticus and non-hemolyticus.

Infection is relatively unimportant as a causative factor of asthma in early infancy and childhood, but becomes increasingly important with increase in age.

Protein sensitization alone does not entirely explain all of the manifestations associated with allergy.

The theory has been advanced that the basis of allergy is a disturbed balance between the sympathetic and parasympathetic nervous system.

Peshkin sponsors the conception that there exists within the body a "physico-chemical disturbance" which probably manifests itself through the nervous system. He states, "If the body is in a state of physico-chemical equilibrium, the



allergic patient enjoys freedom from symptoms in spite of exposure to an etiologic protein."

The patient has acquired protein tolerance.

Vaughan speaks of a "balanced allergic state." If any factor disturbs this equilibrium, symptoms will result. The factors may be specific or non-specific or both. The specific factor may be an overdose of the sensitizing protein. The immediate result of the introduction of such a factor will be the onset of an asthmatic attack.

The development of asthmatic symptoms and a true attack may be delayed for some time in spite of constant exposure to a known allergen.

According to Peshkin the development of the attack of asthma immediately upon exposure to the allergen is due to immediate and complete unbalancing of the physico-chemical equilibrium. In the delayed attack it takes a long and constant stimulus or irritation of the allergen to induce physico-chemical unbalance and the development of an attack.

The protective mechanism which maintains physico-chemical balance may become disturbed through non-specific causes. If exposure to a sensitizing protein is insufficient to disturb the physico-chemical equilibrium, an intercurrent infection is often enough of an added factor to produce complete unbalance. The intercurrent infection alone will not precipitate the asthmatic attack even in the presence of a partially maintained balance. It requires the added factor of the specific allergen.

When the physico-chemical balance is profoundly disturbed, the various non-specific and specific factors acting together will always induce asthma and precipitate the attack.

The striking characteristic of the asthmatic state in childhood are the persistent chronic cough and the dyspnea during the actual attack.

Pathologically there is remarkable freedom from actual pulmonary disease. The x-ray picture will often show the picture of moderate sinobronchitis as evidenced by moderate mediastinal gland enlargement and bronchial markings. Eosinophilia may be present and marked or may not be present. It is not an obligate symptom of asthma. The pathological picture in the lungs is definitely non-inflammatory.

The dyspnea is brought on by impediment to the free entrance and exit of air. The lumen

of the bronchi may be narrowed as a result of actual thickening of the wall as a result of muscular contraction or through plugging with exudate.

Bronchospasm may be present although smooth muscle sensitizing antibodies have never been demonstrated by animal experiment to exist in the asthmatic subject. They are present in the subject artificially sensitized by injection of horse serum.

The bronchial muscle may be stimulated to contract through reflex action of the autonomic nervous system. Some such action may take place and explain the hypertrophy which actually exists in the asthmatic subject. This muscular hypertrophy is not as great, however, as it is in chronic bronchitis in which dyspnea is commonly not present. One can hardly believe that it is a principal factor in bringing about the dyspnea.

Angioneurotic edema of the bronchial wall may explain part of the picture. It is a common manifestation of allergic reactions. The striking effect of adrenalin in relieving the immediate attack lends support to this view. The plugging of the lumen with thick viscid mucus may also lead to considerable mechanical obstruction.

To fix the causative factors in asthma, there is required first of all a carefully taken history with reference to the hereditary factor in the antecedents and a careful inventory of the child's daily environment, habits and dietary with reference to exposure to possible allergens. A careful physical inventory, particularly of the chest, and the head region, including rentgenography of head sinuses and of the chest, tuberculin testing and other laboratory tests required to establish absence or presence of active focal infection; and finally a series of protein skin tests accurately performed with standardized materials and properly interpreted.

The subject needs to be studied carefully in this manner and kept under observation and supervised over a considerable period.

The treatment of the asthmatic is quite a complex problem and involves a number of factors. It is to the advantage of the little asthmatic subject to have the disorder under control at the earliest possible moment and to prevent it from assuming chronic form. The longer its duration,



the more resistant it becomes to treatment and the more disabling its effects. Pronounced chest deformities, chronic enfeeblement, and varying degrees of bronchiectasis are an almost inevitable result.

Since the disease is so essentially allergic in nature and dependent for its manifestation upon the effect of allergens, it is of prime importance to discover the specific allergen or allergens which may be etiologic factors in a given case.

For practical purposes these will be found in three sources—the food, inhalants derived from material in the environment, and allergens derived from focal infections.

In the infant and very young child, the dietary must be carefully assessed for possible food allergens. Milk and eggs are particular offenders; to a less degree other foods, such as fish, especially shell fish meats, and some fruits and cereals. Today test material is developed for practically every food eaten by man.

Food allergy becomes decreasingly important with increasing age of the child. After the age of five, comparatively few food allergens precipitate an asthmatic attack.

The most careful scrutiny of the environment must be made. Allergens inhaled from the environment become one of the very frequent causes of asthma in the child after four or five years and up to adolescence. House dust, animal emanations from domestic pets or the horse in the form of dander, feathers, clothing, the pollens from flowering plants are all common sources and must be checked and if possible removed from the environment.

If this is difficult or if such important foods as milk and eggs are involved, gradual desensitization can be brought about by the injection of specific allergens. Such injections must be continued for a long period of time and must be gradually increased in dosage as tolerance is established. This sort of treatment may be necessary at intervals over a period of years.

Asthma precipitated from allergens originating in focal infections are probably the most common type the practitioner will encounter. It is certainly the most common type beyond the third year. It is a bacterial allergy. The focus of infection is invariably about the head. In the younger child before the age of six almost

entirely in the tonsils or lymphoid tissue of the throat, in the child beyond six the head sinuses play a major role.

An early and thorough tonsillectomy and adenoidectomy will bring a great deal of relief to the little asthmatic and peace to his medical advisor. The certainty of relief or cure does not, of course, follow in every case, but it will in a large majority and is a measure first to be thought of in a proven case of the infective type of asthma. I have never yet failed to see even the most severe case somewhat improved after this measure. Inadequate results are often due to an operation delayed too long or badly performed.

Where sinus infection is the focus, the situation is more difficult. The region is quite inaccessible to treatment and does not respond like the more exposed regions of the throat. Over ambitious procedures and treatment will do quite as much harm as not doing enough.

With marked clouding of the sinuses or with protracted rhinitis in the older child and continual repetition of the asthmatic attack, irrigation of the head sinuses and permanent antrum window drainage is advisable. It will do no harm if carefully performed and may do a lot of good. X-ray treatment of the head sinuses has been recommended. I have had no experience with this form of therapy.

The outright infective type of case is, in my opinion, the only type of case in which vaccine therapy is of any value. The vaccine must be autogenous. Personally I have seen very little benefit from stock vaccines. In my own experience all vaccine therapy has proven to be a precarious reed to lean upon and I have been more often disappointed than helped, although I must say in all fairness that in a few cases the results seemed almost spectacular and I would never fail to try the treatment in a difficult case.

All other non-specific forms of therapy, such as typhoid vaccine or foreign proteins, are practically useless. The same thing is true of measures to produce hyperpyrexia, such as vaccines or external heat. They may be even dangerous, due to a certain degree of exhaustion which they may produce.

For the acute attack no remedy quite equals

adrenalin or the related substances epinephrine, or ephedrine. Intravenous or subcutaneous use will give almost immediate effect and will ameliorate, or often cause the entire attack to subside. It is unwise to continue its use beyond the attack as is often done. With continued use its effectiveness seems to be lessened.

The belladonna preparations and particularly their alkaloid atropine are very useful remedies. These remedies may be continued during the intervals of attacks and can be given over long periods.

I have the distinct impression that calcium salts, especially the gluconate or lactate given during the intervals of attacks are of some value.

The dietary regime of the juvenile asthmatic, aside from the concern of food allergies, is important. These cases are practically all undernourished, are troubled with anorexia, and are subject to chronic fatigue. Often their condition is complicated with chronic forms of eczema characterized by severe itching. It is well to aim at high concentration of the diet so that the volume of food taken can be small and emphasize adequate intake of the accessory factors, especially the Vitamins A, B, C and D.

Elimination from the environment of every possible inhalant allergen is of the greatest importance. House dust, feathers, animal dander are important offenders. Flowering plants about the house and yard or garden plants and weeds need investigation and possible elimination.

Much can be done in the way of prophylaxis for the juvenile asthmatic if his environment is kept clear of these potential allergens. With a little care and judgment he can be protected against contact with a good deal of upper respiratory infection which without question furnishes the most frequent and common etiological factor in precipitating his attacks.

For the severe and protracted asthmatic no single therapeutic factor is quite as beneficial as a complete change of climate—to warm semi-tropical regions with a minimum of vegetation and fog. Such geographical regions are relatively free from conditions which make for much upper respiratory tract infection and for this reason are so beneficial to the asthmatic. His own weakness and disorder in this respect is im-

proved and he is exposed to a minimum of contact.

To me the juvenile asthmatic has always seemed a continual challenge and a little patient who presented a series of problems for nearly all of which relief is possible if an intelligent attack is made upon them. Again and again one can have the delightful experience of transforming a child from seeming chronic weakness and disability to one in good health and equal to practically all the demands of normal childhood.

## DISCUSSION

Dr. J. P. Coughlin, Chicago: Dr. Schlutz's paper is so comprehensive that it does not admit of very much discussion, but I would like to bring up one point. These children during an attack are immeasurably helped by the administration of adrenalin, atropin or belladonna. I gave a child two or three minims of adrenalin and 1:1000 grain of atropin and was disappointed in the result. Lately I have not hesitated to give 10 minims of adrenalin and 1:300 grain of atropin. I know the result is established quicker and is more lasting than by the more conservative dosage. I do not know how much atropin it would take to kill a three-year-old child and I hope I never find out, but I know I can give the amounts stated above without harmful results.

Dr. A. H. Parmelee, Chicago: One thing that impressed me about Dr. Schlutz' paper is that he brought out the fact that with increasing age the child shows less and less reaction to food reagents. The reason this interests me is that so often mothers bring in children six, eight and ten years of age with asthma, who are being partially handicapped, in my opinion, by a poorly balanced diet because the mothers are afraid of offering food substances toward which the child some years before has shown a skin reaction. We know that skin reactions for foods do change from year to year. The things to which a child has been sensitive in infancy he may not be sensitive to in later years. The thing about all these allergies which is of importance for us to remember is that our responsibility as physicians is toward the whole child and not toward one clinical manifestation; because a child has eczema we must not have our minds so focused upon the skin that we cannot remember that the whole child is part of our responsibility. It is more important for him to grow and be a well developed and well nourished child in every respect than it is for the mother to be pleased because a little skin rash has cleared up. An outstanding example which illustrates my point better than anything else is the occasion when a mother brings in a child who has been weaned from the breast at the second or third month because of a moderate or mild eczema; this to my mind is the most ridiculous thing one could do. To take a child off the best food he



could have for the sake of something that annoys the mother much more than it annoys the child, and without any absolute assurance that it is going to bring about any beneficial effect to the infant in the long run, is bad technic. I think the same reasoning applies to the case of the asthmatic child. We often see a child who is poorly nourished on account of a poorly balanced diet improve without any other treatment than being put back on a well balanced diet, regardless of the things it had been sensitive to some years previously.

Dr. F. W. Schlutz, Chicago (closing): In answer to Dr. Coughlin, the dosage of adrenalin can be fairly large. Personally, I have no fear of dosage of adrenalin in the asthmatic child. The thing that has impressed me very much is the tolerance that develops to this drug if you persist in giving it beyond the asthmatic attack. This is true of adrenalin and ephedrin. It is a common procedure. I have seen children come in that were regular adrenalin addicts. They had been getting adrenalin way beyond the attacks, hoping to curtail the next one that might come on, with the result that the adrenalin was not effective. You have the best effect with adrenalin if you use it just as a shock measure during the attack.

I agree with the point that Dr. Parmelee made about the fewer food allergies in the asthmatic child beyond the fourth or fifth year. The trouble with the asthmatic child when he comes to you is that he is altogether too thin. He is undernourished and is an immediate victim to anything in the way of infection on account of lowered resistance. One way to make him more resistant is to feed him. I will not say that we can disregard food allergies but they sink into insignificance in the older child when compared with other factors such as focal infections. It is very important to get the juvenile asthmatic in a good state of nutrition.

I also agree with Dr. Parmelee about weaning and the readiness with which doctors wean a child from the breast because he has colic or has eczema. The trick about breast feeding in such cases is to give the child a minimum amount of breast feeding and complement it with a non-allergic food. In this way the good effect of breast milk is not lost altogether. If it is carefully given and the mother's breasts kept functioning, one will find that by degrees tolerance for breast milk will be established and it will be possible eventually to put the baby back on full breast feeding.

Dr. Cowie of Ann Arbor presented a very interesting paper before the last American Pediatric Society meeting in Cleveland. He made the interesting observation that testing materials deteriorate very markedly with age and that testing material is by no means standard even when it comes from the same firm. The potency of it is quite dependent on the nitrogen content of the material. When deterioration takes place this nitrogen content disappears. He showed surprising variations in material from the same lot. This may explain probably why sometimes you have unfavorable or negative results with your testing material.

## THE HISTIDINE MONOHYDROCHLORIDE THERAPY OF GASTRODUODENAL ULCER

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In 1933, A. G. Weiss and E. Aron reported the effect of the parenteral injections of amino acids in the prevention and healing of experimental peptic ulcer.<sup>1-7</sup> These investigators used the Mann and Williamson<sup>8</sup> operations for the production of experimental ulcers in dogs. This technic consists in transplanting the pancreatic and biliary portion of the duodenum into the terminal ileum, then restoring the continuity of the stomach by anastomosing the pylorus with the jejunum or proximal ileum, by an end-to-end anastomosis. Peptic ulcers of a subacute type develop almost uniformly just beyond the pylorus after ten to twenty-eight days. Profuse diarrhea, severe anemia, frequently pronounced melena and cachexia occur, with finally death by emaciation. Complete protein digestion with the amino acid end stage is seriously affected and probably not completely attained. Aron and Weiss thus considered the absence of the essential amino acids from the metabolism, the important factor, and the ulcer and death consequently produced by amino acid deficiency. Of the essential amino acids not synthesized by the body, histidine alone prevented the formation and evolution of the experimental ulcers. Traumatic erosions and experimental ulcers healed under parenteral administration. The consistently complicating melena, so often fatal, did not occur in the animals where histidine was used, and while emaciation and anemia appeared the animals survived.

These observations led to the use of histidine parenterally in the therapy of gastroduodenal ulcer in man. The results were encouraging and satisfactory. A number of contributions to the literature confirmed the original report with results comparable to, and frequently superior to the generally accepted methods of ulcer therapy. The appended bibliography contains these references.

In a preliminary report we<sup>9</sup> indicated the very

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favorable response obtained by us in the use of this treatment in 21 patients, all of whom were ambulatory and rather a liberal dietary regime. We are now analyzing our series of 73 patients treated by parenteral histidine monohydrochloride, observed over a six months' period.

*Selection of Patients and Analysis of Study.* All patients in this series had clinically active symptomatology. Except for definite emergency surgical indications these patients were unselected. We treated five patients with high grade organic obstruction. Three patients had functional obstruction. There were four cases of marginal ulcer following gastrojejunostomy. All patients had had previous therapy of medical or surgical nature. Several methods of treatment in the same individual with unsatisfactory results was the history of all patients. Eight hemorrhaging patients are included in this report. The age varied from 18 years to 76 years. There were five females and 68 males. Seven gastric ulcers and sixty-six duodenal ulcers were found. The duration of symptoms varied from two months to twenty years. The distribution according to duration of symptoms is shown in Table 1.

*Method of Study.* A clinical diagnosis was substantiated by definite x-ray evidence in all patients. All were kept ambulatory, most of them continuing their usual occupation. At the beginning of treatment the diet generally advised was an average American diet, low in residue, containing approximately 3,000 calories, non-stimulating and free from condiments. As relief appeared, qualitative and quantitative increase was permitted. When pain was pronounced, for the first week a bland non-residue diet was employed, but rapidly increased as subjective relief appeared. Smoking was permitted. No other medication was used except mineral oil for constipation.

In addition to the ordinary routine study by laboratory methods of the stools, blood, urine and gastric contents, in many patients specialized investigations were employed. In twenty-three cases we made serum protein determinations before and after treatment. There was no significant alteration in any of these. The gastric secretion investigations routinely pursued, consisted in the passage of the Levene tube F 16 intranasally, producing a minimum of

discomfort without salivary contamination, and fractional aspirations practiced with the tube continuously *in situ*. All fasting gastric secretion was aspirated, measured and titrated for free hydrochloric and combined acids. Ewald meals were fractionated at half-hour intervals for three samples. Alcohol meals, 50 c.c. of 5% alcohol were used the following day, using the fractional method. The next day histamine dihydrochloride 1 c.c. 1:1000 solution was given subcutaneously and the fractional analysis repeated as above. These various methods of investigation of the gastric contents are described with charts in our original report and will not be repeated here. The physical characteristics of the resting gastric secretion showed visible changes under histidine therapy, becoming thicker and more viscid, although difficult to demonstrate by specific gravity or viscosity determinations. We have, however, been unable to demonstrate any marked quantitative change in the mucin content of the gastric juice using the technic described by Fogelson.<sup>10</sup> Mucin determinations were made in fifteen cases. The stimulated secretion in 60% of the patients decreased in amount with a diminution in the free and total acid titer. Toward the end of the injection treatment, and subsequent to treatment, the gastric secretion showed a return to normal percentages in quantitative and qualitative features. Of the eight cases that showed hypersecretion and retention previous to therapy, two had a return of these symptoms and had to be operated on for relief.

*Dosage and Method of Treatment.* L histidine monohydrochloride (Beta imidoazole alpha amino monohydrochloride propionic acid) is prepared from blood by acid hydrolysis and mercury precipitation. The purified product is used as a 4% aqueous solution (Larostidin Roche) put up in 5 c.c. ampoules. The drug is administered intramuscularly in alternate buttocks daily. Five cubic centimeters was accepted as the basic daily dose. Patients showing little or no improvement in subjective symptoms after the tenth dose received two to four times the basic dose daily. The number of doses in our series varied from a minimum of ten in one patient, where complete early relief ensued, to a maximum of sixty doses in a refractory case which responded slowly. In patients with a

history of long symptomatology we have deemed it advisable even though relief was obtained to continue treatment by the use of one or two injections weekly for one or even two months. We have as yet not had the indication for repetition of a course of treatment.

The injections are comparatively painless. There was no instance of local, general or focal reaction. Gastric symptoms have not showed aggravation in any patient. There were observed no ill effects from the treatment. With careful surveillance of all patients we have been unable to demonstrate any renal injury as reported by Newburgh<sup>11</sup> in his observation of toxic effects in animals. No contraindications of this treatment were observed. We can definitely state the treatment is without danger.

*Effects on General Nutrition.* Constitutionally the patients who responded favorably improved rapidly in general health and physical well-being. This was associated with a marked increase in the hemoglobin and red cell count in patients where these were below normal. This was especially noticeable in patients treated during and shortly after ulcer hemorrhage. There was no change in the pulse rate or blood pressure readings. About 80% of the patients gained weight, average five pounds, although a few who gained are listed as failures. In 10% of the cases the weight remained stationary, and in 10% there was loss, ranging from two to six pounds.

*Subjective Results.* In the favorable cases the subjective improvement came very early in the treatment, usually after two to twelve injections. Pain, hyperacidity, gas and belching were promptly relieved; appetite returned quickly. Night distress disappeared.

*Immediate Results.* Immediate results were evaluated at the termination of approximately 24 injections. In our series of 73 patients, fourteen showed little or no improvement after 24 days of treatment. However, after continuation of two injections weekly, two were relieved after one additional month, and one after two months. Eleven have persisted in having symptoms and are listed as failures of histidine therapy. Partial relief has been obtained in one of these listed as unsuccessful. This can hardly be ascribed to histidine treatment, because it

appeared three months after treatment was discontinued.

*Later Results.* Later results are evaluated at the six month period. Four patients, in addition to the eleven described as immediate failures, increased the failures for this period to fifteen or 21%. Fifty-eight, or 79% can be classified as the six months' clinical-relief group. Twenty-seven, approximately 37% of the total patients, showed complete disappearance of the radiologic evidence. This included six of the seven gastric ulcer patients. Fourteen per cent, or ten patients, indicated improvement in the radiologic lesion. Twenty-one patients, or 28% revealed no change in the x-ray after treatment. This includes one gastric ulcer.

TABLE I

Distribution of incidence, and results after six months, according to duration of symptoms before beginning treatment.

Duration of symptoms	Percentage of total cases in each group	Favorable responses; percentage of total cases	Unfavorable responses; percentage of total cases	Favorable responses; percentage of each group	Unfavorable responses; percentage of each group
Less than 1 year.....	22	20	2	91	9
1 to 2 years .....	21	17	4	81	19
2 to 5 years .....	18	14	4	78	22
5 to 10 years .....	17	14	3	81	19
10 to 15 years.....	15	11	4	73	27
15 years and over....	7	3	4	43	57
Totals .....	100	79	21	..	..

One patient showed a return of severe symptomatology, and operation was advised. Briefly, his protocol is given as follows:

Case 30. H. L., male, aged 49 years. He had an ulcer history of fifteen years' duration, more or less continuous. Fourteen years ago the ulcer perforated and was closed by purse-string suture. Four years ago re-operation was performed. Multiple medical treatments were failures. Complaints before histidine therapy were: severe pain, eructation, vomiting and severe weakness. Examination disclosed a small mass, freely movable, at the pyloric area. Gastric retention measured from 700 to 1,200 cubic centimeters; Ewald meal total acid 97°, free hydrochloric 72°; x-ray showed constant deformity of duodenal bulb with pronounced retention, evidently of an organic type. Surgical interference was advised, but while awaiting assignment Larostidin was started. The improvement was so pronounced that the patient demanded delay in operation. All symptoms were relieved and the retention disappeared. The weight rose from 118 pounds to 149 pounds. The mass was reduced in size, although still palpable, and the x-ray continued positive. Ten weeks after the course of injections pain recurred with, however, little or no retention. The patient lost five pounds. Operation was urged, and a



large indurated scar was found at the pylorus involving the pancreas. There was no evidence of malignancy. Posterior gastroenterostomy was performed; convalescence was uneventful. Histidine therapy definitely was an aid to this patient, although he is listed as a complete failure in the parenteral treatment.

Another patient, fourteen weeks after the discontinuance of treatment, with a history and

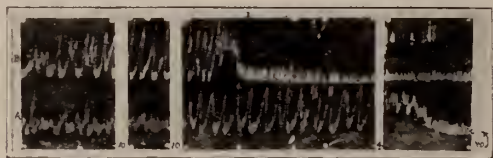


Fig. 1. Kymographic tracing taken before Histidine Therapy. This shows periods of activity of 40 to 50 minutes' duration separated from one another by quiet periods lasting about 40 minutes. The active period is characterized by Type 1 contractions on low tone closing with definite periods of high tone sometimes surmounted by Type 3 contractions.

findings very similar to the case just described, who had just as definite indications for surgical therapy because of organic obstruction without a palpable mass, became completely obstructed. We ascribe his setback to rigorous, intravenous anti-syphilitic therapy. Although surgery was advised when first seen, he also is listed as a complete failure of this treatment in our series.

A third patient, sixteen weeks after his treatment, developed a gastric hemorrhage. Perforation occurred in one patient in this series. With a history of over twenty years duration and no relief from various therapeutic measures, twenty-five injections of histidine gave complete subjective relief. The x-ray evidence of duodenal ulcer persisted, however. Two weeks after discontinuance of this treatment perforative symptoms developed rapidly. Operation was performed and a large indurated duodenal ulcer which had perforated anteriorly, was discovered. Recovery occurred.

The patients, four in number, with previous gastroenterostomy, and symptoms and evidence of gastrojejunal ulcer, uniformly cleared quickly, symptomatically and radiologically. The radiological evidence of healing is very definite in the gastric ulcer series. However, because the duodenal series contained little evidence of niche or crater formation, the radiological evidence of healing, here, as in any series of duodenal ulcer patients, is open to considerable objection. Opinion in interpretation is too great a factor.

Fifty per cent are thus listed as showing radiological improvement in the duodenal ulcer group.

This series, then, includes fifteen failures in the group of 73 patients, approximately 21% showing no improvement at the end of the six month follow-up analysis.

We make the observation that patients with syphilis do not respond well to this ulcer treatment. It is also questionable whether combination of this form of therapy would give better results combined with alkali administration. A trial in a few recent patients seems to indicate that better results are attained with histidine alone.

A few representative, brief protocols are here given to illustrate the evidence of the efficiency of this amino acid therapy:

Case 9. J. C., male, aged 34 years. The ulcer history was of twelve years' duration. The history is very comprehensive, consisting of repeated hospitalization for medical treatments, including alkalis, intravenous and foreign protein therapy with rigid dietary control, all without relief. Gastroenterostomy was tried with resulting aggravation of symptoms. Subsequent varied medical therapy repeatedly used produced no improvement. The x-ray revealed duodenal and gastrojejunal ulcer. Histidine produced relief after seven injections. This patient has remained free from symptomatology since cessation of treatment. The x-ray deformity has disappeared completely. Gastric

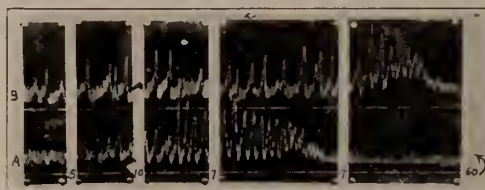


Fig. 2. Kymographic tracing taken after ten days of Histidine Therapy. This shows active periods of 40 to 60 minutes' duration separated by 60 minutes of quiet. The active periods are characterized by Type 1 contractions on low tone, closing with small increase in tone.

motility studies before treatment indicated extreme hypermotility with Type 3 contractions predominating at the end of the contraction phase. During and after treatment this type of contraction disappeared and Type 1 substituted, a definite diminution in the motor activity of the stomach. This evidence has been consistently demonstrated in a small series of patients under this amino acid treatment. The appended kymographic tracings illustrate the findings in the patient described.

A gradual decrease in motility is seen in the figures 1, 2, and 3. The most characteristic features are the



shortening of the active periods and the abolition of the high tone change and Type 3 contractions which were present before histidine therapy was initiated. This running picture was selected as representative of the four cases studied in this manner.

(Interpretation by R. D. Templeton, Associate Professor Physiology, Loyola University.)

Case 17. C. D., male, aged 51 years. Ulcer history has been present for nine years with practically continuous symptomatology. Relief is obtained only by alkalis, vomiting or food, which must also be practiced to relieve night distress. There are associated complaints of severe weakness and loss of weight. Blood examination shows: hemoglobin 40%; red blood count, 2,180,000; white blood count, 7,600. Three hundred fifty cubic centimeters were aspirated from the fasting stomach. The x-ray report read: "Penetrating ulcer of the lesser curvature of the pars pylorica with marked pylorospasm." Ten injections of 5 c.c. of

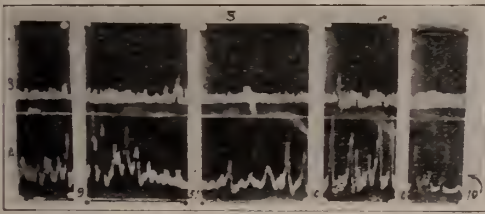


Fig. 3. Kymographic tracing taken after thirty days of Histidine Therapy. This shows periods of activity of 15 to 35 minutes duration separated from one another by periods of quiet lasting 60 to 130 minutes. The active periods are characterized by Type 1 motility on low tone; closing with practically no tone level change.

histidine were used with but slight improvement; then ten injections of 10 c.c. with complete relief; ten more injections of 5 c.c. were then given. The x-ray at the end of eight weeks showed complete healing of the defect. The red blood cell count rose to 4,140,000 in four weeks. There has been no complaint six months after cessation of the treatment.

Case 57. D. V., male, aged 50 years. History of gastric distress has been present for five years with pain after meals and gas. Four days before admission, while having severe pain he vomited bright red blood in large quantities and had several black, tarry stools during the next two days. Severe weakness and vertigo is present. The patient presented symptoms and findings of severe hemorrhage. The blood examination showed: hemoglobin 45%; red blood count, 1,800,000; white blood count, 9,350. Rest and routine treatment without alkalis for bleeding ulcer was employed. Histidine therapy was initiated after then days. The blood count at the end of the therapy, 36 injections without other hematinic medication, was: red blood cells, 4,200,000. The roentgenological evidence, three weeks after entrance, was: "Constant deformity of the duodenal bulb diagnostic of ulcer." Relief from pain was obtained with five injections. There was a gain of 10 pounds in weight. The duodenal deformity disappeared at the end of the therapy.

Case 26. Dr. R. H., male, aged 33 years. History of duration of symptoms dated twelve years with two severe hemorrhages, one six years ago and another two years ago. Patient has continued on alkali powder treatment without interruption with several hospitalizations. The dietary restrictions have been especially rigid, such as no meat or coffee for the last four years. For years he has awakened each night between 1:00 and 2:00 a. m. to take milk and powder to relieve pain. The x-ray reveals duodenal ulcer. The amino acid treatment gave complete relief. The patient is now on a liberal diet including meats; the night distress has disappeared; while improved, the x-ray continues to show the duodenal deformity.

Many phases of the etiology, evolution, course and chronicity of peptic ulcer are still to be understood. The relapsing course, occasioned by definite factors such as nervous strain and stress, dietetic indiscretions, seasonal influences, demands long and careful observations extending over a period of years before complete cure can be affirmed. Spontaneous remissions and relapses are often part of the natural history of this disease. It is obvious, then, that clinical experience demands extreme caution in the evaluation of permanent cures by any form of therapy. It is generally accepted that in a very large percentage of patients, the various forms of operative and non-operative treatments have demonstrated inadequacy both as regards relief of symptoms and temporary and permanent cure. This amino acid treatment in our series, as far as the time factor permits of comparison, has proved much more satisfactory than the various modes of accepted ulcer therapy. This statement is permissible because more liberal diets were employed without associated medication.

It is very difficult to evaluate the mode of action whereby histidine produces the beneficial result. Weiss and Aron expressed the opinion that histidine promotes, restores and maintains the epithelial integrity of the gastric and duodenal mucosa. The absence of histidine, an essential amino acid not synthesized in the human body, thus produces a metabolic defect which is restored by parenteral injection in this treatment. The possibility of a different mode of action has been investigated by us in studies on ulcer production and ulcer prevention, which are in course of publication. We produced gastric ulcers in rats by repeated injections of histamine dihydrochloride. We also demonstrated

ulcer formation in rats by the use of repeated histamine enemata. These experimental ulcers did not occur when the animals were protected by previous injections of histidine monohydrochloride (Larostidin Roche). These findings suggest first, a working hypothesis for ulcer production; that is, by repeated histamine stimulation, peptic ulcers are produced. Obviously, further scientific investigation is necessary and is now being continued. Secondly, another working hypothesis is permissible, that histidine stimulates the production of histaminase, which inactivates histamine. Gastrin (gastric secretin) action is inhibited, thus reducing gastric juice acidity, gastric secretion and possibly peptic activity. This could explain the change in physical character in the gastric secretion. The diminution in gastric motility could likewise be attributed to this action. Further work is being done to substantiate the rather generous tentative conclusions.

#### SUMMARY AND CONCLUSIONS

1. Histidine therapy, in our series, did not produce any local, focal or general reactions, and we could demonstrate no danger in using this therapy.
2. Pain, eructation and distressing symptoms, in the majority of cases, promptly disappeared.
3. Patients tolerated a liberal diet.
4. The treatment is simple and can be carried out in the ambulatory patient.
5. Aggravation of symptoms by this treatment has not appeared in our series of patients.
6. This treatment is effective especially in postoperative gastrojejunal ulcers.
7. In about 80% of the cases the general nutrition was improved.
8. Radiological evidence of healing was more pronounced in gastric than in duodenal types of ulcer.
9. After a six-months check-up, 79% of the cases were clinically improved, and 21% were considered failures.
10. In this series, as a rule, the percentage of favorable responses varied inversely with the duration of the symptoms.
11. We have discussed a working hypothesis of peptic ulcer production, and suggested a possible mode of action of histidine treatment.

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## DIVERTICULA OF THE COLON

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Although Littre<sup>1</sup> described diverticular hernia, in 1700, and Chomel<sup>2</sup> reported the occurrence of pouches of the duodenum, in 1710, the first description of diverticula of the intestine is usually attributed to Sömmerring, in 1794.<sup>3</sup> It

was not until the last half of the nineteenth century that careful pathologic studies of this condition were reported. The first description of diverticulitis written in English was by Habershon,<sup>4</sup> in 1857, and subsequently there were a number of reports on the postmortem observation of colonic diverticula, either simple or accompanied by secondary changes. Mayo and his collaborators,<sup>5</sup> who, in 1907, reported five cases of proved diverticulitis, were the first to record a group of cases in which the diagnosis was established during life. The first preoperative roentgenologic demonstration of diverticulitis is attributed to Le Wald; the surgical aspects of this case were reported by Abbe,<sup>6</sup> in 1914.

We studied the cases of diverticulitis and diverticulosis observed at the Mayo Clinic in a year. There were 178 cases of diverticulosis (simple colonic diverticula) and 30 of diverticulitis (colonic diverticula with associated inflammatory process). The asymptomatic character of simple colonic diverticula or diverticulosis is attested to by the fact that this condition was found in almost 7 per cent. of the patients who came to necropsy in the same period. In the majority of these cases, the condition had not given rise to any significant symptoms. A similar number of roentgenologic examinations with the barium enema revealed evidence of diverticula. While the original report of diverticulitis during life<sup>5</sup> was based on surgical exploration, the recognition of colonic diverticula in the vast majority of cases is at present dependent on roentgenologic examination.

Colonic diverticula are generally thought to occur predominantly among males; the ratio of males to females in the reported cases varies from 2 to as high as 7:1. In these reports, a distinction usually is not made between diverticulosis and diverticulitis. In the group of cases under consideration, diverticulosis was found to be almost evenly distributed in the two sexes; but diverticulitis, and particularly the complications of diverticulitis, occurred most frequently among males. It would seem, therefore, that colonic diverticula, like hypertension<sup>7</sup> and many other conditions,<sup>8</sup> are to be viewed with greater concern in the male than it is in the female.

The demonstration of colonic diverticula in children has been reported by several observers;

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the earliest case is apparently that of Finney,<sup>9</sup> in which the patient was a child, aged three years. Interestingly enough, in most of the cases observed during childhood the patients have been boys. The youngest patient in our series was a man, aged thirty years, and the period of greatest incidence was in the latter half of the sixth, and the first half of the seventh decade. Colonic diverticula seldom cause symptoms before the age of forty years, and the development of diverticula is generally considered to be an incident of middle age and the later periods of life.

The etiology of colonic diverticula is a matter of some speculation. It is probable that an inherent weakness of the muscular layers of the intestinal wall is the most important factor; whether this defect is inherited or acquired has not been determined. Many observers state that colonic diverticula most frequently affect obese individuals, but a few note that they may affect thin or debilitated persons. Since in our experience, individuals of normal weight predominate, it is our opinion that in a majority of instances, obesity does not act as an etiologic factor. Constipation and flatulence have been considered to have a causal relationship, but in the series we have studied, the incidence of these symptoms certainly has not been greater than it would be among the general population.

Diverticula are found with increasing frequency in the lower part of the intestinal tract; hence, the largest number occur in the distal portion of the colon. Diverticula are comparatively rare, in the right half of the colon, and most common in the sigmoid. The latter region is, by far, the most common site for the development of secondary inflammatory changes, or diverticulitis and its complications.

Although, as Brown has stated, the presence of uncomplicated colonic diverticula is sometimes held responsible for almost any abdominal symptom, there is no reliable symptom of uncomplicated diverticula, and recognition is dependent on roentgenologic or proctoscopic examination. In a certain number of these cases, a history of previous attacks of diverticulitis can be elicited.

The cardinal symptom of diverticulitis is pain which is usually localized in the left lower quadrant of the abdomen. This is of variable severity

and is commonly intermittent or cramping. It is usually associated with irregularity of bowel movements and is often relieved by defecation. It may be accompanied by distention, low-grade fever, moderate leukocytosis, dysuria, and increased frequency of urination. When perforation occurs, pain is more severe and often excruciating, and there is fever which frequently is accompanied by chills. Urinary symptoms are frequent in this group of cases, particularly if the perforation occurs anteriorly. When obstructive tumefaction occurs, there may be either constipation or diarrhea; this condition is frequently and easily confused with carcinoma.

The physical examination of patients who have uncomplicated diverticula of the colon reveals no significant changes. Patients who have diverticulitis usually present tenderness in the left lower quadrant of the abdomen and there often is a palpable mass. When diverticulitis gives rise to obstruction, there is always a palpable mass; in the acute phase, the tenderness may be so marked as to preclude adequate examination. Proctoscopic examination is of definite value, especially in diverticulitis, in the acute phase of which one might fear to give a barium enema. Roentgenologic examination is, of course, the most accurate means for the detection of these lesions.

According to the definition, diverticulosis (uncomplicated colonic diverticula) presents no complication; but a number of patients who have diverticulosis give a history of previous diverticulitis. Diverticulitis may be acute, recurrent, or chronic. Peridiverticulitis, which frequently occurs in association with diverticulitis, may be simple, associated with a variable degree of enterospasm, or may give rise to hyperplasia, with obstruction. Peritonitis probably occurs frequently with diverticulitis, but usually is localized; it may be associated with abscess or perforation. Enterovesical or enterocutaneous fistulas may follow perforation. Rarely, metastatic supuration occurs. With the healing of a diverticulitis, adhesions may occur, but these rarely in themselves produce obstruction.

The prognosis of uncomplicated colonic diverticula is good. Despite the fact that we were unable to demonstrate any important relationship between diverticulosis and constipation, we

believe that it is best for patients with this condition to follow a bland diet calculated to prevent constipation, with the addition of agar and of mineral oil if these seem necessary. In most cases in which there is a complicating inflammatory process (instances of diverticulitis), patients respond to medical treatment, which includes, in addition to the preceding measures, atropine in the form of tincture of belladonna. Surgical treatment may be urgently demanded in the complications of diverticulitis; usually, all that can be done immediately is to perform a colostomy. The colostomy can sometimes be taken down later, or in some instances, resection of the involved segment may be found necessary.

#### SUMMARY

The present clinical conception of diverticulosis and diverticulitis is a development of the last thirty years. On the basis of our studies, it would seem that the incidence of colonic diverticula among the general population is somewhat less than 7 per cent., for this was the incidence in two groups in which the condition was diligently sought for. We found that although asymptomatic diverticula were observed approximately equally in the two sexes, diverticulitis and its complications occurred predominantly among males. The greatest incidence of colonic diverticula is in the sixth and seventh decades. We could find no significant relationship between obesity, constipation, or flatulence and the occurrence of diverticula.

Colonic diverticula of and by themselves produce mild symptoms, or there may be an absence of symptoms. The cardinal symptom of diverticulitis and its complications is pain. Diverticulosis itself is a medical condition. In the majority of cases of diverticulitis, the condition responds very well to medical management; surgical procedures are, however, occasionally indicated.

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#### MANAGEMENT OF LESIONS OF THE FEMALE URETHRA

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The female urethra is a small tubular structure which conveys the urine from the bladder to the exterior. Because the urethra is surrounded by two sphincters, it is the organ of urinary control. It has long served as the passageway for catheters, cystoscopes, and sounds. Not until recently, however, have we realized the importance of urethral lesions as the frequent cause of bladder disturbances in the female. It is hard to understand at times how some of these small, tiny lesions can cause such severe bladder discomfort, frequently intermittent, and recur over a period of many years. Anatomically, the urethra is located within the erotic zone where sensory nerves are numerous and hypersensitive to stimuli. This anatomical arrangement, in all probability, is the explanation for the above clinical observations.

Urethral lesions are an important and interesting phase of urological problems, either in the male or female. We have been particularly interested in the disturbances of the female urethra for the past two years. While I feel that we have barely scratched the surface, there have been some findings which may be of interest to the general practitioner, the internist, the gynecologist and obstetrician, as well as the urologist. Ferreting out some of these lesions, applying adequate corrective measures, will result in a group of very grateful patients.

During the past 15 years many articles have appeared in the medical literature on the subject of urethral disturbance in women. Bugbee,<sup>1</sup>

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Stevens,<sup>2</sup> Folsom,<sup>3</sup> Pugh,<sup>4</sup> and others<sup>5,6</sup> have contributed valuable papers in the past. Herrold and Ewert<sup>7</sup> have written on this subject during the past two years. An excellent contribution appeared in the *British Journal of Urology* by Winsbury-White in 1933.<sup>8</sup> Experimentally, he demonstrated by postmortem serial section

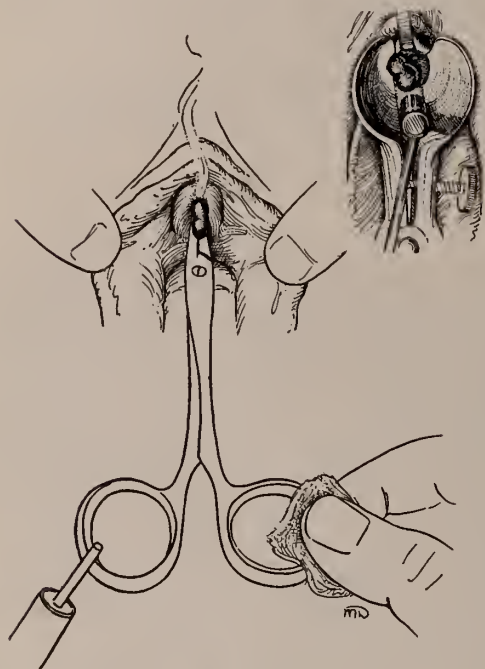


Fig. 1. Mosquito forceps attached to the entire pedicle of the caruncle for fulguration. Insert. Illuminating speculum for the exposure of the distal urethra.

studies, lymphatic connections between the cervix, base of the bladder and the kidneys.

So, in reality, it is impossible to study this problem solely from a urological point of view. Herrold<sup>9</sup> in a series of 29 patients who had bladder symptoms with cervical lesions, noted improvement in 19 after irradiating the cervical foci. Clinically, we often observe this lymphatic distribution. One of us (LWR) sometime ago treated a carcinoma on the floor of the bladder without doing a vaginal examination. When the intravesical treatments did not have their anticipated effects, further examination revealed a carcinoma of the cervix. This extension into the bladder did not occur by continuity of tissue, but by way of the lymphatics. Many surgeons have observed that operations about the deep urethra or bladder neck may be followed by a

troublesome renal sepsis, particularly when the operation is done to correct the result of a chronic inflammatory lesion. Cystoscopically, submucous injection on the floor of the bladder, extending from the posterior vesical lip to one or both ureteral orifices, should be interpreted as evidence of lymphangitis. That the mere passage of a sound into the deep urethra, either in the male or female, may be followed by a chill, and fever and renal tenderness is well known.

One of the most important factors which has been responsible for the more accurate diagnosis of urethral lesions has been the improvement in urological instruments. With the old convex or concave type of instrument, examination of the urethra was impossible. While the angular design aided materially in the passage of these instruments into the bladder, they at the same time precluded an accurate survey of the urethra. With our improved straight instruments the examination of the urethra becomes exceedingly simple and accurate. These same improved cystourethroscopes are equally serviceable for the examination and treatment of the upper tract. In the light of our present knowledge, a cysto-



Fig. 2. Cystic urethritis. Numerous cysts in the proximal urethra.

scopist who is unable to pass or use a straight instrument is merely lacking in the fundamentals necessary for carrying on a complete urological investigation.

Factors contributing to chronic urethral lesions may be divided into three groups. Group 1: where antecedant urinary tract infections are chiefly responsible; Group 2: where genital tract lesions are chiefly responsible; and Group 3: where both urinary and genital tract lesions are jointly responsible.



In Group 1 an external meatus located high in the vaginal introitus, which is continually bathed in bacteria and infected secretions, may well predispose to urethral infections as well as a small meatus providing poor urethral drainage. Prolapse of the urethral mucosa is necessarily exposed to irritation and infection and always produces symptoms. Coital trauma and urethral trauma, due to masturbation, have been cited by previous writers<sup>10</sup> as obviously producing urethral damage due to chronic irritation.

Acute infection of the urinary tract, as gonorrhea, non-specific infections, including pyelonephritis, concern us here only so far as they may produce an anlage for chronic lesions.

The group of chronic urethral lesions concern us chiefly in this paper. They may result from one acute or repeated acute attacks of urinary tract infection. Among the lesions which we noted were: small fibrosed meatus, infected urethral pockets, skenitis, granular and cystic urethritis, polypoid masses, caruncles, sclerosis of the bladder neck, and one case of urethral diverticulum. Distant foci, as infected teeth, tonsils and sinuses, may affect the urinary tract in the form of interstitial cystitis and urethritis. Cord lesions, due to syphilis, multiple and lateral sclerosis, or trauma may seriously affect normal bladder function and predispose to infections.

In Group 2 cervicitis, due to streptococcus, staphylococcus, colon bacillus, or the gonococcus may be entirely responsible for the bladder dysfunction in the female. It has long been recognized that cervicitis and cystitis are frequent companions. Pelvic infections due to gonococcus or non-specific infections, particularly following abortions, may be the originator of chronic bladder discomfort. How frequently we obtain a history from a woman that "they never had any bladder or kidney trouble until they contracted gonorrhea or had an abortion performed, or both." Pregnancy, especially repeated pregnancies, is a very potent factor in the production of changes in the lower urinary tract. Urethral and bladder trauma or infection, particularly during difficult labors and deliveries, may result in postpartum cystoceles, urethroceles and prolapse.

In Group 3 we have a combination of urinary and genital tract lesions which are jointly responsible for the bladder symptoms. This is,

perhaps, the most important group, particularly from the treatment standpoint. Should a urethral lesion be eradicated in the presence of a genital tract infection or pelvic relaxation, only partial relief of symptoms may follow. Temporary relief may be followed by a recurrence. On the other hand, should a pelvic repair be done for a cystocele or urethrocele in the presence of chronic urethral lesions, the surgical result as judged by relief of symptoms can be very disappointing. This point was interesting in this series of cases. Forty-two per cent. of these patients gave a history of a genital or urinary tract infection, or both, for which a pelvic operation or repair had been performed. Therefore, close co-operation between the urologist and the gynecologist is essential in this group in order to obtain satisfactory results.

I would like, very briefly, to present to you a résumé of 89 female patients who on careful urethroscopic examination presented one or more chronic urethral lesions. In a series of 208 clinic patients there were 81 or 38 per cent. who had urethral findings accounting for all, or at least a part, of their symptoms. Of the 89 patients, 80 were white and 9 were colored. Sixty-eight were clinic patients and 21 were private patients, 60 were married, 17 were widowed, separated or divorced, and 12 were single. The average duration of symptoms was 9 years. The average age of onset was 33 years, giving an average age of 42 years for this group.

The most common symptoms were frequency, urgency, burning, and nocturia. Sometimes these symptoms were mild and intermittent, while at other times they were very severe and persistent. Incontinence, due to inability to control the bladder tenesmus, was not uncommon. Many patients were handicapped in carrying out their daily work due to frequent urination. The symptoms were, as a rule, most severe during waking hours and aggravated by physical exertion, riding on street cars or in automobiles; 55 patients had to get up at night to urinate; 18, one to two times; 21, three to four times; and 16, five times to every hour. Twelve patients gave a history of having passed blood in the urine; 3 stated they had passed clots. It would seem that when the cause of hematuria is being investigated in women, urethral pathology should be included as a possible cause. Fifty-three pa-

tients complained of pain, presumably urethral in origin; 30 or 33 per cent. complained of suprapubic or lower quadrant pain; 11 had severe vesical tenesmus, while 9 complained of a high unilateral backache; 3 patients noted the absence of sacral backache after urethral correction.

In the past history, 56 patients or 62.7 per cent. had been pregnant; 13 only once; 13 twice; and 30, 3 or more times. Many of these histories were sprinkled with abortions and mis-

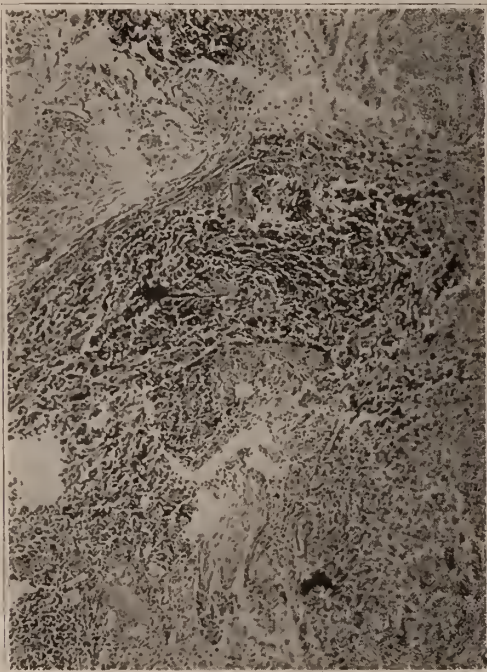


Fig. 3. Photomicrograph of strip of cystic urethritis showing deep periurethral inflammatory infiltration. (Reduced from x 105)

carriages. Twenty-nine patients denied pregnancy, but gave a history of a previous genital or urinary tract infection. In only 4 patients was there a negative history. Of the cervixes which were carefully examined, 50 per cent. showed definite evidence of infection; 26 patients had pelvic relaxations, of which 6 had been repaired.

Before this group of patients was subjected to cystourethroscopy, a careful history was taken and a physical examination was made. The external meatus was inspected. The urethra was palpated vaginally for tenderness and stripped for discharge. Catheterized specimens were obtained for smears and cultures. The amount of residual urine was determined per catheter immediately after voiding. The passage of the

catheter at times provoked considerable urethral distress. A 26 F diagnostic bulb was passed for the detection of urethral strictures. After this preliminary survey many of these symptoms and findings pointed to urethral pathology, which was later verified by careful urethroscopic examination. For this routine examination we have preferred to use the 24 F McCarthy cystourethroscope. For intraurethral treatments the panendoscope seems to be the instrument of choice. Our interpretations of the lesions were:

Granular urethritis .....	46	Polypoid masses .....	5
Cystic urethritis .....	32	Infected periurethral glands .....	3
Caruncles .....	10	Paraurethral cysts (presumably of Skene's ducts) ..	2
Small meatus .....	8	Diverticulum with stone .....	1
Strictures .....	6	Spastic urethra .....	1
Vesical neck sclerosis .....	8		

As can readily be seen, the majority of these lesions are inflammatory in character. Also, there are more lesions than urethras. Two or more lesions may be present in one urethra, as a cystic urethritis with a vesical neck sclerosis or a small meatus, or caruncle and granular urethritis, and so on.

No patient with acute or hyperacute symptoms was instrumented. They were all treated conservatively and cystoscoped at a later time as indicated.

The possibility of associated upper tract pathology must be constantly kept in mind. Interstitial cystitis, elusive ulcers, or an early renal tuberculosis may have similar preliminary findings and can only be differentiated by careful examination of the bladder and the kidneys. The following were also noted:

Chronic pyelonephritis ....	19	Nephrotosis .....	2
Chronic cystitis .....	10	Cord bladder .....	2
Hydronephrosis .....	4	Atony of the bladder .....	1
Ureteral stricture .....	3	Chronic nephritis .....	4
Ureterocele .....	2	Interstitial cystitis .....	5
Ureteral calculus .....	2	Renal tuberculosis .....	3

The urinary findings were very interesting. The majority of these patients presented a grossly clear, sparkling urine. The sediment often contained only a few white cells or red cells, or both. There were only 13 cases of pyuria. The urine was cultured in 72 cases, of which 13 were sterile. The organisms recovered on culture were:

Staphylococcus .....	35	Gram pos. and neg. diplo-	
Colon bacillus .....	19	coccus .....	3
Streptococcus .....	10	Gram neg. B (not colon).	1
Mixed organisms .....	16	Staphylococcus aureus ....	1
Gram pos. B. ....	5		

Six specimens contained hyaline and granular casts and sugar was noted only once. Seven-



ty-six patients had a Wassermann test, of which 9 or 11.8 per cent. were positive.

With adequate urological equipment the treatment of these lesions becomes very simple. Surface anesthesia with  $\frac{1}{2}$  per cent. cocaine or 1 per cent. diothane has been found to be satisfactory in most cases for examination and treatment. For the apprehensive, nervous woman a



Fig. 4. Polypoid masses in the proximal urethra as seen through a No. 28 F McCarthy panendoscope.

general anesthetic, such as nitrous oxide or ethylene, should be given. Local infiltration with 1 per cent. novocaine is adequate for meatotomies, removal of caruncles and resection of bladder necks.

The following surgical procedures were employed: Meatotomy; removal of caruncles and paraurethral cysts; fulguration of urethral cysts and polypoid masses and infected pockets and Skene's ducts; progressive dilatation of urethral strictures; postoperative dilatation of all fulgurated cases followed by urethral instillation of mild antiseptics. Occasionally massage of the urethra over a sound has been distinctly helpful in the follow-up treatment; diverticulectomy of the one case by Drs. Curtis and Gardner; trans-urethral resection of the bladder neck in two cases. Of the 8 cases of bladder neck in this series, at least 6 will have to be resected for permanent relief.

The results of our treatments have been rather encouraging. However, only 75 cases were treated:

Symptom free	.... 28 or 37%	Markedly improved.	34 or 46%
Slight improvement	10 or 13%	No improvement...	3 or 4%

Whenever the passage of a 24 F cystourethroscope is apt to be painful a meatotomy should be done. This is, perhaps, the simplest of all urological operations. A few drops of 1 per cent. novocaine may be injected into the posterior lip of the meatus. A mosquito forceps is then applied to the intended line of incision and the tissue firmly crushed. After the forceps have been removed the crushed area is incised with a scalpel. This will control postoperative bleeding and prevent healing. A meatotomy will also greatly facilitate the examination of the distal urethra, which in some cases is extremely important. Postoperative sounds will be less painful.

For some time we removed caruncles by the method described by Bumpus.<sup>11</sup> With his technique we found it difficult to expose the upper limit of the tumor pedicle in all cases. This is



Fig. 5. Photomicrograph, cross section, of polypoid mass showing chronic inflammatory tissue and the large peripheral vein.

particularly true in conjunction with a small meatus. We now remove caruncles with a modified Bumpus technique (Fig. 1). The tumor is well exposed with a nasal speculum to which a small electric bulb has been attached. With better exposure complete removal of the tumor be-



comes rather simple by any method chosen by the operator. We prefer to grasp the entire pedicle with a mosquito forceps, remove the excess for microscopic sections, place a damp strip of gauze about the forceps for the protection of adjacent tissues, and apply the active electrode directly to the forceps until the base is thoroughly desiccated. The forceps is then removed and the speculum re-inserted. If necessary, ad-

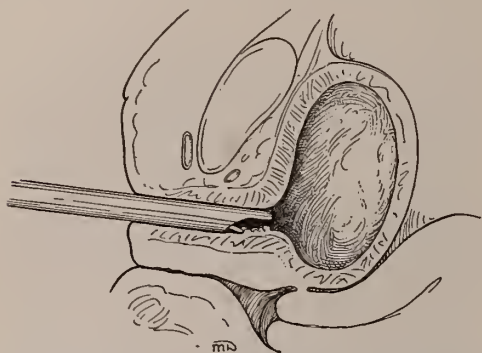


Fig. 6. Panendoscopic sheath with fulgurating electrode in place for destroying urethral cysts and polyps.

ditional high frequency may again be applied directly to the base under vision. Troublesome bleeding is rarely encountered.

Routine microscopic sections should be made. Counseller and Patterson<sup>12</sup> reporting 12 carcinomas of the urethra, stated that 3 or 25 per cent. gave a history of a caruncle which had been previously removed. One of our unimproved patients had a caruncle removed without relief of symptoms and presented a recurrence in one month. This recurrent tumor had an infiltrated base and carcinoma was suspected. Unfortunately we lost tract of this patient and a section of the original tumor was not made. While a true caruncle is regarded as an angioma, other varieties have been described,<sup>13</sup> particularly granulomas.

Adequate exposure of the distal urethra will also materially aid in the detection and treatment of infected urethral pockets and Skene's ducts. Urethral pockets, when infected, appear as pinhead-size white areas, into which a small blunt probe may easily be inserted. They are effectively destroyed by touching the probe with the high frequency current. The opening of Skene's ducts are at times well hidden within the meatus. With such a location, when in-

fected, they can very easily escape our attention on just a casual inspection.

Cysts are found in the proximal urethra on the floor or lateral walls, or both. There may be only 4 or 5, but occasionally the urethra is packed with them (Fig. 2). They appear as transparent, pinkish, grape-like masses attached to the mucosa. Small blood vessels are seen on their surface near the base. These cysts are the result of periurethritis with cystic degeneration of the submucous glands. On several occasions one of us (LWR) has tried to remove a piece of cystic urethra for microscopic study with the resectoscope. Apparently due to the permeation of the heat through the thin sections the cysts were destroyed. From these sections, however, we were able to demonstrate marked submucous inflammatory infiltration (Fig. 3).

Polypoid masses (Fig. 4) occur in the proximal urethra and are white to pink in color, freely movable with the irrigating fluid, and attached to the mucosa by a long stalk. Large blood vessels may be seen along the periphery and extend nearly to the distal tip. Microscopic sections (Fig. 5) of these masses reveal granu-



Fig. 7. Local infiltration of the bladder neck before transurethral resection. Insert. Shows resectoscope in place

lation tissue with large peripheral vessels. It is not hard to understand how a spontaneous rupture of one of these vessels may result in considerable hematuria.

Regarding the treatment of these cysts and polyps, they are very easily destroyed with a fulgurating electrode through a panendoscope (Fig. 6). Associated granulations were frequently noted. Only 9 cases of marked granular urethritis were treated with a weak high frequency

current. The current should be of such low intensity so as not to stick to the mucous membrane. Granular urethritis, which was noted, varied from mild injection to marked areas of granulations. They are merely evidence of a deep peri-urethritis. Gradual dilatation of these urethras with a Kollman will usually effect a cure. Five to 10 per cent. silver nitrate application is often helpful in the treatment. All post-fulguration cases, after a three to four weeks interval, were treated with sounds and urethral instillations. The average caliber after dilatation was about 35 F.

All of our stricture cases were amenable to

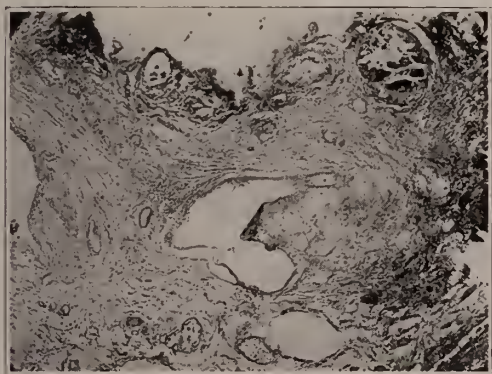


Fig. 8. Photomicrograph of a section removed from a contracture of the bladder neck showing infection of the submucous glands and chronic inflammatory edema. (Reduced from  $\times 105$ )

progressive dilatation treatment. Undilatable strictures should be cut, preferably with an electro-urethrotome.<sup>14</sup>

Regarding sclerosis of the bladder neck, Caulk<sup>15</sup> first called our attention to this condition in the female in 1921, and reported a case which he had punched with a good result. Keyes<sup>16</sup> and others have touched upon this subject. It is a timely question whether or not this important clinical entity has received the proper emphasis. It has been shown that the proximal urethra in the female and the retromontane urethra in the male are homologous and are derived from the same embryological structures. We admit that 10 to 15 per cent. of bladder neck obstructions in the male are due to inflammatory change. Then, why should not similar changes occur in the female bladder? In 1933 Nesbit<sup>17</sup> reported three cases which he had resected transurethrally with excellent results. Renner,<sup>18</sup> by careful examination of female post-

mortem bladders, has demonstrated the submucous glands along the floor of the proximal urethra and bladder neck. Folsom has repeatedly called our attention to the importance of these glands in the presence of chronic urethral infections. Where all other treatments have failed, and in the presence of a contracture or median bar with residual urine and a trabeculated bladder, it would seem that a transurethral resection should be done. In a properly chosen case, it is surprising how a transurethral revision may alleviate all of the bladder symptoms. Thus far, we have resected two cases with excellent results. This operation may very easily be done under local novocaine infiltration anesthesia. In our hands, a Hayem's cystoscopic catheter used through a panendoscope has been found adequate equipment for this infiltration anesthesia (Fig. 7). The sections removed should not be cut too deep on account of the close proximity of the anterior vaginal wall. The removing of 2 to 4 sections will usually suffice. This operation will not only remove the obstruction, but will also remove the chronically infected suburethral and subcervical glands. Resectoscopic microscopic sections (Fig. 8) reveal inflammatory changes of the submucous glands and deep suburethral tissues.

#### SUMMARY

A résumé of 89 patients with chronic urethral lesions is reported. Cystourethroscopic examinations revealed one or more lesions which accounted for all or at least a part of the bladder symptoms.

With a careful history, physical and urine examination a diagnosis of urethral pathology may be suspected.

The absence of urinary sediment, with or without residual urine, in the presence of long-standing bladder discomfort, is an indication for a complete urological survey, including the entire urethra.

With appropriate instruments and therapeutic measures the detection and correction of urethral lesions have become exceedingly simple and accurate.

Suburethral chronic foci, at least in some cases, are responsible for recurrent pyelonephritis.

In patients with a chronic urinary sepsis a contracture of the bladder neck may be present.



When a contracture is present, it should be removed surgically.

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## THE LEUCOPENIC INDEX IN INTRACTABLE ASTHMA

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Intractable asthma is a chronic condition characterized by paroxysms of dyspnea, often severe and particularly pronounced in the expiratory phase, continued indefinitely and usually remaining unresponsive to any form of therapy. The usual history offers few clues to the diagnosis; scratch and intradermal tests are almost always

negative; trial and elimination diets and food charts are all too often without effect. Foreign proteins such as milk, peptone as well as auto-hemotherapy, autogenous and stock vaccines usually result in no improvement. Surgical intervention offers only temporary relief, if any at all; physiotherapy has been of scant value; medication may occasionally alleviate symptoms, but in the final analysis the case is usually classified as a bacterial or infective type of asthma which is unmanageable in spite of every diagnostic and therapeutic procedure available.

In 1934, Vaughan<sup>1, 2</sup> and later Rinkel<sup>3</sup> described a procedure which the former called the leucopenic index that opens a new avenue of diagnosis in this type of case. This procedure will be briefly described together with its clinical application in intractable asthma. Vaughan observed that following the ingestion of milk in a milk sensitive patient a leucopenia developed, while foods to which the patient was not sensitive were followed usually by leucocytosis. The test is run as follows: the patient reports in a fasting state and after a rest period of 20 minutes a white blood count is taken. The test food is then eaten and 4-6 white blood counts are made at 15-20 minute intervals. The same pipette and counting chamber are generally used and, to eliminate error, five minutes are allowed for settling of the cells in the counting chamber.

The counts thus obtained may be charted in the form of curves of which there are four types. In the presence of leucocytosis the curve usually rises gradually from 1,000 to 4,000 cells beyond the fasting count, but at the end of 80 or 100 minutes it gradually again approaches the fasting count. The food producing this type of curve is considered as being non-allergic, although not always, and is referred to as being in positive balance. If there is a leucopenia the white blood count drops gradually from normalcy through 4,000 to 1,000 cells and at the end of 80-100 minutes its rise is observed again, attaining to the fasting count. This curve is assumed to characterize sensitization to the food in question and is referred to as being in negative balance. The third type of curve is one not subject to fluctuation, one way or the other, more than 1,000 cells. The fourth type of curve shows wide and frequent fluctuations above and below the fasting blood count. The latter two types are difficult



to interpret and may be repeated at a later date when more definite counts are obtainable.

In some of the curves offering difficulty to interpretation a composite curve may aid in the analysis. This is a line drawn from the fasting blood count to a point representing the average of all subsequent counts, and denotes the general tendency and degree of fluctuation. It is well known that skin tests in allergy are of value in only 45-50% of the cases, that negative tests do not rule out a given allergen, nor do positive tests necessarily indicate sensitization. This applied in general also to the leucopenic index, except that the accuracy is greater than with skin tests. It has been found that foods giving a positive balance and presumably not a cause of symptoms may, nevertheless, give rise to allergic symptoms. Similarly foods giving a negative balance and suggested, therefore, as an etiologic factor do not always manifest clinical allergy. This, however, is not the rule but should be borne in mind whenever satisfactory progress is not being made. By means of leucopenic indices foods not even suspected of being the cause of symptoms are frequently demonstrated as etiologic factors.

This report includes 106 leucopenic index determinations performed on 12 patients in whom the usual diagnostic procedures failed to reveal sufficient findings to effect relief of symptoms. A food capable of producing allergic symptoms is referred to as being clinically positive regardless of whether the various tests are negative or positive. Similarly a food which does not produce allergic symptoms is called clinically negative, even though skin tests may be positive. Of the 54 proven clinically positive instances 37 revealed negative skin tests with a decrease in the white cell counts of more than 1,000 cells. This represents 34.91% of the total number of cases tested and 68.52% of the clinically positive cases. An increase in leucocytes with proven positive clinical response but negative skin tests was presented in 12 foods (11.32%) of the total number and 22.22% of the clinically positive instances. In 3 clinically positive foods the leucopenic response correspond with the positive skin test while in 2 clinically positive foods an increase of leucocytes with positive skin tests was noted.

Of the 39 clinically negative instances 23 (21.70%) of the total number (106) tested revealed a digestion leucocytosis associated with

negative skin test. Six clinically negative foods with positive skin tests also showed a leucocytosis, while one revealed a leucopenia. Nine clinically negative foods revealed a leucopenia with negative skin tests.

TABLE 1

#### RELATION OF SKIN TESTS AND CLINICAL RESULTS IN 106 LEUCOPENIC INDICES DETERMINED ON 23 COMMON FOODS

Skin tests positive.....	12	instances.....	11.32%
Skin tests negative.....	94	instances.....	88.68%
	106		100.00%
Clinically positive.....	54	instances.....	50.94%
Clinically negative.....	39	instances.....	36.8%
Not tried clinically.....	13	instances.....	12.26%
	106		100.00%

TABLE 2

#### ANALYSIS OF 106 LEUCOPENIC INDICES IN 12 CASES OF INTRACTABLE ASTHMA

Blood Counts		Clinical Tests		Skin Tests		
Leuco- penia	Leucocy- tosis	Posi- tive	Nega- tive	Nega- tive	Posi- tive	Percentage
37	..	37	..	37	..	34.91
..	12	12	..	12	..	11.32
..	2	2	..	..	2	1.89
3	..	3	..	..	3	2.83
..	6	..	6	..	6	5.66
9	..	..	9	9	..	8.49
..	23	..	23	23	..	21.70
1	..	..	1	..	1	0.94
..	13	..	..	13	..	12.26
	Not tried clinically			Not tried clinically		
Tot. 50	56	54	39	94	12	100.00

TABLE 3

#### ANALYSIS OF 106 LEUCOPENIC INDICES IN 12 CASES OF INTRACTABLE ASTHMA

Clinically positive foods—54 instances		
Leucopenia with negative skin test.....	37	68.52%
Leucopenia with positive skin test.....	3	5.56%
Leucocytosis with negative skin test.....	12	22.22%
Leucocytosis with positive skin test.....	2	3.70%
	54	100.00%
Clinically negative foods—39 instances		
Leucocytosis with negative skin test.....	23	58.97%
Leucocytosis with positive skin test.....	6	15.38%
Leucopenia with negative skin test.....	9	23.09%
Leucopenia with positive skin test.....	1	2.56%
	39	100.00%

It will be noted from the above figures that of the foods tested the skin tests were positive in only 12 instances (11.32%) and of these 5 were positive and 7 negative clinically. In 94 instances (88.68%) the skin tests were negative and of these 49 foods (46.22%) were positive, and 32 (30.19%) were negative clinically, while 13 (12.26%) were not tested clinically. In three clinically positive foods and 23 clinically negative foods the blood counts corresponded with

the skin tests and clinical findings; 12 clinically positive foods with negative skin tests revealed an increase in leucocytes and 2 foods with positive skin tests also revealed increased leucocytes. Deducting these 14 instances (13.22%) of the total number tested from 37 (34.91%) clinically positive instances with leucopenia and negative skin tests, there is an increase in the diagnostic percentage available by the use of the leucopenic index of 21.70% over the skin tests. No interpretation is attempted of the 16 clinically negative instances in which the leucocyte count and skin tests did not correspond. Following are case reports illustrative of the method:

Case 1. Mr. E. W., aged 44, office executive, was seen first in August, 1934, complaining of paroxysms of coughing with expectoration of 20 years duration, present the year around. Ten years ago difficulty developed in breathing, diagnosed as asthma, constantly present, relieved by adrenalin and ephedrine. He had taken medication of various kinds, had changed climate frequently and has had skin tests several times followed by treatment, but had obtained no relief. He is worse in damp weather. The past illnesses included measles and pneumonia in childhood and tonsillectomy in 1919. All teeth absent. No history of allergic manifestation in family. Examination in August, 1934, revealed essentially a dyspneic patient with an emphysematous chest and numerous musical rales. The blood count was normal, blood Wassermann negative, urine revealed no abnormality. The usual skin tests, both scratch and intradermal, revealed no findings of significance. Trial diets afforded some relief. In October, 1934, a series of leucopenic index studies were made and on this basis he was placed on a diet of wheat, sweet potatoes, asparagus, celery, pears, peaches, lettuce and lamb. He improved ostensibly. Meanwhile the leucopenic index of peaches was found to be definitely in the negative phase. Removal of peaches resulted in further improvement. Irish potatoes, although in the positive phase, provoked asthma clinically. Wheat could be eaten in moderation, but when ingested excessively was followed by asthma. He has remained free of asthma, can now tolerate extremes of temperature, and is able to perform physical exercise without dyspnea for the first time in years.

Case 2. Mr. N. N., aged 44, carpenter, was seen first September, 1934, presenting a history of asthma of 2½ years duration. It was constant, not relieved by adrenalin. Prior to the development of asthma he was subject to paroxysms of sneezing, nasal blocking and coughing of 15 years duration during which time he had 5 nasal operations without relief. There was no allergic history in the family. Scratch and intradermal tests revealed a few mildly positive tests the application of which resulted in no clinical improvement. Vaccine therapy, the removal of suspected inhalant factors, and dietary management likewise offered no relief. In October, 1934, on the basis of leucocyte counts he was

placed on a diet and within a week his cough decreased 75% and the asthma stopped completely. Rice and celery which were not seriously suspected as causes of asthma gave definite leucopenic indices in the negative balance the significance of which was proven clinically. Milk, eggs, sweet potatoes and tomatoes also produced leucopenia and asthma clinically. Wheat and orange juice were tolerated in small amounts, but when larger quantities were ingested, asthma followed.

Case 3. Mrs. H. B., aged 37, housewife, seen in November, 1934, presented a history of hay fever every fall for 30 years. Asthma developed first at 20 years of age, has terminated the hay fever season in the past ten years, but in the last 2 years has been constant. Her allergic symptoms were always better during three pregnancies, but became very much worse after delivery of the first baby in March, 1925, and the second baby in December, 1926. Contact of horses, dogs and cats produced asthma within a few minutes. There was no history of asthma or other allergic signs in the family. Skin tests were markedly positive to so many foods and inhalants that it was difficult to establish a maintenance diet on this basis. Tests to wheat and milk, however, were negative. Symptoms did not improve appreciably and before the exclusion of these foods leucopenic index determinations were made and found to be strongly in the negative phase. Upon removal of these from the diet together with other eliminations asthmatic attacks stopped.

Case 4. Mrs. H. R., aged 28, housewife, complained of sneezing, nasal blocking, running nose, cough and loss of the sense of smell and taste of 15 years duration. Symptoms were worse during and for several months after pregnancy, also from August 15 until frost. Asthma developed in the fall of 1933, and has been constant since. Scratch tests were all negative, but intradermal tests disclosed moderate reactions to ragweed, wheat, the citrus fruits, chocolate, several vegetables and pork. Clinical trial demonstrated that pork, wheat and milk produced asthma within an hour and, while asthmatic symptoms were much subsided, she was not entirely well. On the basis of leucopenic index studies potatoes and tomatoes were taken from the diet with complete relief from symptoms.

TABLE 4  
THE LEUCOPENIC INDEX IN 12 CASES OF  
INTRACTABLE ASTHMA  
SUMMARY OF RESULTS

Case	Foods No. of Tested	Leucocy- Leuco-		Clinical Results		
		tosis	penia	Good	Fair	Poor
1. E. W.....	12	7	5	..	1	..
2. N. N.....	10	5	5	..	1	..
3. H. B.....	12	8	4	..	1	..
4. H. R.....	6	4	2	1	..	..
5. M. A.....	4	..	4	..	..	1
6. A. T.....	13	2	11	..	..	1
7. V. K.....	6	5	1	1	..	..
8. P. K.....	7	3	4	..	..	1
9. H. F.....	8	5	3	1	..	..
10. F. E.....	10	6	4	1	..	..
11. F. M.....	9	6	3	..	1	..
12. B. T.....	9	5	4	1	..	..
Totals .....	106	56	50	5	4	3



Five of the twelve cases of asthma eventuated in good results clinically. Of these three had responded fairly well to the usual allergic measures, but after utilizing information gained by the leucopenic index determinations improved to the extent of being classified under good results. The remaining two cases presented no improvement whatsoever prior to leucopenic index determinations. Four cases in which fair results were obtained had shown no clinical improvement until food eliminations based on leucocyte counts were made. In three of the twelve cases of asthma no improvement was obtained. One of these failed to disclose a single food producing blood counts toward the positive phase. The remaining two failed to respond clinically even after eliminating foods with leucocytic indices in the negative phase.

#### CONCLUSION

The leucopenic index is a diagnostic procedure which does not displace the usual diagnostic allergic methods, but is considered an adjunct of particular value in the intractable type of case.

It is suggested that a good proportion of so-called intractable or chronic cases of asthma heretofore often regarded as based on infective or bacterial allergy, in reality result from a complexity of multiple food sensitizations. This sensitization to foods may be so inclusive as to involve all foods in some instances, but usually one can determine a sufficient number of foods which the patient may tolerate to maintain caloric and dietary requirements and remain free of symptoms.

In this series of counts leucopenic index determinations appear to have about 21% more diagnostic value than a corresponding number of skin tests. There may be a definite leucopenia following ingestion of a food which does not produce clinical allergy. In a few instances leucocytosis followed ingestion of a food subsequently found to be a cause of symptoms. The various trial and elimination diets, while effective in some instances, often include the very foods which produce symptoms and can, therefore, not be accepted as ruling out food factors in intractable asthma.

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#### DISCUSSION

DR. HERBERT J. RINKEL, Kansas City, Missouri: Dr. Zeller has given a conservative and reliable report concerning the value of the leucocytic response in intractable asthma. His figures agree with those of Vaughan and with those of my own experience, both as to the increased value over skin testing and in the per cent. improvement in results.

The treatment of intractable asthma has been and still is one of the most difficult problems in medicine. During the past few years great progress has been made, chiefly due to the knowledge that intractable asthma does not necessarily differ from occasional or mild asthma except in degree and multiplicity of sensitizations. The intractable asthmatic is an allergic individual sensitive to things he eats and things he inhales, the same as his more fortunate brother who has asthma only from a few foods or inhalants.

The leucocytic response which has been detailed here today is probably the newest diagnostic procedure in allergy and as shown by Dr. Zeller is very valuable in intractable asthma. To the serious student of medicine its objectionable features, i.e., the length of time required for the test and the necessarily long period of time over which it must be used, are more than compensated for in the fact that an additional per cent. of these patients can be relieved.

For the physician who wishes to apply these tests in his work, I should like to emphasize the following points:

First, the preparation of the patient. It has been shown that exercise, emotional states, as well as the preparation and rate of eating the food, will all affect the count; therefore, these must be made a constant.

Second, adopt a standard time interval of counting and become familiar with the curves obtained in a series of clinically controlled cases. The slide indicates the difference in the graph if counts are taken at 10 or 20 minutes.

Third, there is no normal control. If one will run these tests in the seborrheic individual, the acne patient or an individual afflicted with trachoma, he will find that they too have leucocytic responses, either positive or negative, the same as the asthma or hay fever patient. The important consideration is that in the allergic individual the food that gives a positive response does not provoke symptoms at that time. This statement would suggest that the test is an invaluable one and that with its aid one could in a relatively short period of time analyze all food allergies. Therefore, certain other facts should be emphasized.

The leucocytic response is not constant. (Slide) As you will note in the graph, the curve "1a" which is a negative leucocytic response to carrots, changes two weeks later to curve "1b," which is an indifferent reaction and one month later to curve "1c" which is a



definite positive reaction and at the time of the last test the patient had asthma following the ingestion of carrots while formerly he suffered no ill effects.

Curve "2a" and 2b illustrate the reverse change. The first curve is a positive response to pork associated with violent symptoms, the second is the response to pork after elimination for four months. At the time of the second test there were no asthma symptoms and the patient ate the food for two weeks before symptoms recurred.

Curve 3a and 3b illustrate the same changes to rice in a patient with migraine. The two counts were made three weeks apart.

It must be thoroughly understood that the change from a negative leucocytic index to a positive one may occur within a short period of time. In one patient with asthma an adverse reaction developed within 48 hours after pineapple was started in the diet. Clinical findings likewise changed in this period of time, there being severe asthma with the fourth eating of pineapple. Again, the response may be quite constant over a long period of time, in one case the response to carrots being practically identical over eight months time.

Another important fact that Dr. Zeller has mentioned is that in certain asthmatics there will be no foods giving a negative leucocytic index or if such reactions are obtained, they are not constant long enough that one can successfully apply the results of the tests. The exact nature of these cases is yet to be determined.

In a series of studies to determine the accuracy of the count, the following findings were obtained:

First, in 45 instances of known food allergy there was a drop in the white blood cells from 200 to 5,800 with an average loss of 1,538 cells.

Second, in these same patients, 40 foods known to be without effect allergically produced an increase of the white blood cells in every instance, the increase being from 200 to 8,000 cells with an average of 1,685.

Third, a patient with migraine lost an average of 1,800 cells with 17 different foods and responded clinically with elimination of these foods. A patient with perennial vasomotor rhinitis lost an average of 1,300 cells with 12 different foods and upon elimination of these foods along with inhalant measures responded clinically.

Fourth, a patient with a mild hacking cough repeated at three to eight minute intervals unless controlled with adrenalin was suspected of being sensitive to lamb. A correlation of the clinical symptoms (cough) over a four hour period and the leucocytic responses are illustrated in the slide.

Fifth, a patient sensitive to banana was fed wheat, carrots, banana and tea at two hour intervals and the clinical symptoms recorded throughout the day. The correlation between the blood response and the symptoms are illustrated graphically, there being positive leucocytic responses to all foods except banana and its elimination produced prompt clinical improvement.

It is our conclusion that the leucocytic response has a permanent place in the diagnosis of food allergy.

## ROENTGEN STUDY OF LESIONS OF THE URINARY BLADDER

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In the presentation of this subject, it becomes necessary to incorporate pathology and symptomology. The cooperation of all those associated with a certain case is of the greatest importance to arrive at a correct diagnosis. Our assistance to the urologist is unquestionable and we are fortunate to have their cooperation. Many of these cases have to be studied from different angles and positions which necessitates several films.

In 1902 we have the first study of the bladder by Roentgen ray, followed by rapid advancement to the present time. During 1904 the study was made of diverticulum by the air cystogram. By 1906 the first cystogram by the injection of opaque media was obtained, and today we have methods of examining the whole urinary tract by Roentgen ray.

Urethrocystography in the male has the same applicability as ureteropyelography in the upper urinary tract, especially in tumors of the bladder, strictures, abscesses and prostatic hypertrophy.

The cystoscope usually detects the presence of tumors, but there are cases where the cystogram is of more value, especially in those tumors involving the bladder floor or near the urethral opening.

If the bladder contents should be cloudy or there is any difficulty in observing the lesion, we must depend on the film study. Sometimes, additional information may be obtained where a calculus is present in a diverticulum as seen by the cystoscope. The size and exact location have to be shown and often the opaque media will surround the calculus outlining the diverticular wall.

It is important to use media of different opacity. If it is too opaque, the lesion will be superimposed and not seen, then it becomes necessary to use a lighter opaque medium.

Valuable information is obtained by a 2 or 3% sodium iodide. It shows the displacement on comparison between the medium and the tumor. The position of the patient often has a

great deal to do with the particular lesion under observation, for instance, the neck of a diverticulum, the shape of a tumor or calculus. While most of the cases outside of diverticula and prostatics are taken in the anteroposterior position, it may be necessary, at times, to change our routine position. The prostatic position will be shown by lantern slides.

In some instances stereoscopic films are made. The information is often exceptionally valuable as one gets the third dimension view. The stereoscopic study on air and opaque cystogram for prostatic pathology is routine. I will go into this more in detail.

In all cases the first film taken is really a general survey for calculi, foreign bodies, hypertrophied kidneys, calcified glands, gas in the colon and metastases to the bony pelvis and spine. Following this survey we take an opaque cystogram using 2 or 3% sodium iodide. If a diverticulum is found, then a view is taken for retention. After thoroughly irrigating the bladder the patient is placed in a 45° angle, especially for prostatic cases with the right leg flexed to 45°, the left leg is straight. The air is introduced by means of a catheter to which is attached a bulb syringe or a pointed glass tube with an atomizer bulb. Air is introduced until the patient feels a pressure sensation. This pressure is continued until we are able to obtain a stereoscopic film.

The pressure is relieved and opaque mixture the consistency of lubricating jelly, made as follows: 25 grams of powdered gum tragacanth mixed with 40 cc. of 95% alcohol and 660 cc. of distilled water. This mixture is placed in the refrigerator over night. If it is autoclaved and kept under sterile conditions it will keep for weeks.

Under sterile conditions 250 cc. of this jelly is added to 60 cc. of lipiodol and enough water to make a satisfactory viscosity. Any smaller amounts may be made by altering proportionately the amounts given.

By means of a short piece of rubber catheter 5 cm. long, attached to a glass syringe of 30 cc. or more capacity, 30 cc. of this jelly is introduced through the urethra into the bladder. Against the remaining air which remains after the air cystogram, 20 cc. of this mixture is introduced when the first stereoscopic film is made.

The balance of 10 cc. is further introduced for the second film. The urologist keeps constant pressure against the media during the time the films are exposed. The media is then washed out with sterile water.

*Diverticula of the Bladder.* Until about 1906 there were only a few cases reported in this country, but since the roentgenographic study of the bladder has been done, the frequency of their recurrence has more often been demonstrated. Our assistance to the urologist, is to determine the size, shape, location and whether or not there is retention in them.

*Calculi.* The urologist with his cystoscope can generally discover calculi unless they are in a diverticulum. The plain survey film generally reveals their presence before the urologist has introduced his cystoscope, especially if the calculus is of a density and size to cast a shadow. Prostatic calculi are often discovered which would otherwise be impossible for the urologist to see.

Tumors extrinsic to the bladder may produce a pressure deformity.

Congenital anomalies and foreign bodies in the bladder are possibilities. Tubes, bolts, pins and various foreign bodies surrounded by a calcium deposit have been found.

Tumors of the bladder, in a report by Young and Waters, occur four times more commonly in the male than the female. Generally bladder tumors may be divided into three classes: 1. Growths that are of the projection type, such as pedunculated or papillomatous. 2. Those that are more flattened, laying against the bladder wall. 3. The infiltrating type.

There are several groupings of bladder tumors but I believe we should consider all tumors either malignant or potentially so until they are proven otherwise. Benign papillomas, no doubt, become malignant due to the fact a secondary invasion is often found. We are liable to find tumors arising from the prostate, sigmoid or internal genitalia of the female involving the bladder, however, the papillary epithelial tumors form the greatest majority of them.

Benign papillomas are entirely intravesical, but often become malignant, especially in the aged. The malignant changes are characterized by epithelial thickening, loss of orderly arrangement of cells, lack of uniformity in size and



shape, the fusing of adjacent papillae, and the invasion of the bladder near the base of the papilloma. The region of the trigone, vesical neck and base of the bladder are the most frequent locations for vesical tumors. Adenocarcinoma occurs in 1 to 2% of cases.

Sarcoma of the bladder is rare and when found are in the very young. Retrovesical sarcoma is generally found in the area behind the bladder and above the prostate. They form a large mass displacing the bladder forward. Fibromas, lipomas and lymphosarcomas are rare. Such tumors as dermoid cysts, teratomas, chondromas, and myxomas arise from embryonic tissue.

The secondary effects of bladder tumors, aside from metastases and cachexia are hemorrhage, calculous formations, obstructions to the urethra and one or both ureters, ulcerations, necroses and infiltration of the bladder wall. This last may occur by neoplasm of the prostate. Do not lose sight of the fact that in difficult cases a study of the intestinal tract is important.

In tumors of the prostate, the Roentgen ray plays a very important part in the diagnosis and treatment. The most common tumors of the prostate are adenomas, hypertrophies and carcinomas.

In hypertrophy of the prostate we are able to show the projection into the bladder, whether it is a median or lateral lobe involvement. When the urologist finds it impossible or difficult to carry out his examination through the cystoscope, we find he depends upon us to assist in the diagnosis.

Prostatic calculi may cause the gland to feel nodular and simulate carcinoma, when the film will often show it to be calculus.

Carcinoma of the prostate does not usually cast any more of a shadow than an ordinary hypertrophy, but it will often show the metastases to the bones. In all probabilities 30% of carcinomas of the prostate have metastases at the time they seek medical aid. The induration is of a stony hardness on palpation. Bone metastases, according to MacCullen, have the following pathological changes: the cancellous portions of the bone are replaced by tumor cells, having a selective stimulating effect, causing an excessive amount of dense and hard new bone formation. Microscopically the lamella of the cancellous bone becomes enormously thickened and

the marrow spaces are narrowed. The spaces become filled with tumor cells which exclude the bone marrow, and the almost complete destruction of the bone marrow causes the marked anemia.

Carcinoma may involve any lobe and the possibility of leaving the capsule behind enucleating, may provide the starting point for a malignant change. One cannot be too careful to have a surgical gland thoroughly examined microscopically. Many sections that appear to be simple hypertrophy may be malignant. When we find in literature that one out of every four or five prostatic obstructions are malignant, it behooves the urologist to safeguard his prognosis, but in our experience these figures are rather high. Carcinoma here, as elsewhere, must be diagnosed as early as possible if we are to prevent metastases.

Many of us are careless, possibly not intentionally, but in the rush of daily routine we fail to make a thorough study of the case and omit the rectal examination. If we will make it a routine to examine every prostatic per rectum in patients 50 years of age or more, we will be surprised to find more evidence of pathology.

Traumatism to the bladder is not so common, but with increasing accidents, it has an important part in bladder injuries. Fracture of the pelvis or a piece of bone may cause perforation and tears. While immediate cystograms are undesirable after trauma, later they may show the result of the injury as extravescical pouches, diverticula or fragments of bone in the bladder.

Symptoms of trauma to the bladder are: hematuria, frequency, pain, dysuria, passage of tumor fragments, pus or calculi, symptoms which should at once suggest investigation of the urinary bladder. Hematuria occurs in 75% of tumor cases. Pain, however, is often absent.

Because of the absence of pain and in the presence of any hematuria a thorough investigation as to its origin must be made. Even if other symptoms are lacking, delay allows the tumors to infiltrate and become malignant or incurable. While the roentgenograms are of little value in very small tumors, nevertheless they should be studied; of course the larger the tumor, the more evidence of it can be shown.

The following describes the method of pros-



tatic study in our six film cystourethrogram: 1. Plain. 2. Antero-posterior cystogram with 2 or 3% sodium iodide solution. 3 and 4. Stereoscopic air cystogram in the 45° angle, and 5 and 6. Stereoscopic opaque cystourethrogram. In a 45° angle using the 30 cc. of lipiodol gum tragacanth mixture. The information obtained, if normal, is no prostatic defect in the antero-posterior cystogram.

In the cystourethrogram the sphincteric impressions are clear cut. The position shows the internal urethral orifice; the shape and length of the urethra; the filling defect in the prostatic urethra produced by the verumontanum. The miscellaneous conditions found are: urethral stricture, periurethral abscess and prostatic abscess.

In prostatic enlargement we have to study: 1. The sphincteric impressions; 2. The length of the prostatic urethra and what proportion is intravesical; 3. Anterior angulation of the proximal portion of the posterior urethra; 4. Constriction of the lumen of the prostatic urethra; 5. The spreading out of the media by compression in the urethra.

The median lobe involvement tends to produce an anterior angulation of the proximal urethra. The size of the lobe and the extension of the distortion can be estimated. The spreading and filling defects in the prostatic urethra indicate pressure by the lateral lobes. If this occurs only in the urethra and not intravesically, there is very little of the lateral lobe projecting into the bladder, but when it occurs both intravesically and intraurethrally, the lateral lobes do project into the bladder.

Circular constriction and elongation of the urethra with no spreading and small flat intravesical defects in the cystogram are often associated with carcinoma. The anterior angulation is only of a small degree. So often carcinoma is associated with hypertrophy that it is difficult to differentiate.

Before closing, outside of the diagnostic aid, we can be of undoubted benefit in the therapy of the bladder tumor. In malignancy we have been able to relieve the pain, produce more comfort, and prolong the life of the patient. The attitude we have, then, toward a carcinomatous patient is relief, prolongation of his life, and hope to inhibit the growth of the tumor.

When a patient is referred to our department

we consider the physical and mental conditions and try to improve them. Then we plan our method of treatment. For example, if there has been too much bleeding causing the hemoglobin to drop to 50%, our "r" units are lessened per day. The technique is as follows: 200 K. V., 5 m. a., 50 cm., 15x15 port, 6.2 "r" units per minute. With six ports, 900 "r" units per port.

#### CONCLUSION

1. Tumors of the bladder should be studied by the cystogram.
2. A routine examination by means of the urethrocytogram for a prostatic lesion is the most recent method used in making a diagnosis.
3. The general practitioner must not overlook the rectal examination in all male patients 50 years of age or over.
4. Deep x-ray therapy is a method in the treatment of tumors of the urinary bladder.

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#### DISCUSSION

H. J. Burstein (Decatur): The advances that have been made within the past few years in the field of transurethral surgery have necessitated an exactness of the knowledge of the pathological changes about the bladder neck that was not deemed necessary previously. With the development in urologic instruments, especially in the development of a retrograde lens system for the study of the vesical neck, and with the additional information obtained from newer methods of roentgen examination, the urologist is now able to treat most of the obstructive lesions about the bladder neck by transurethral operation.

With the technique outlined by Dr. Goodwin, the anatomical deformity of the vesical neck and posterior urethra can be determined with accuracy and the secondary bladder changes noted. For the diagnosis of diverticula, the opaque media or sodium iodide cystogram is of greatest value, and with it we can observe their size, depth, and emptying ability. For the latter the injection of air for contrast is of distinct aid. In diagnosing traumatic bladder conditions, I believe that the method of Vaughan and Rudnick of injecting air per catheter is of greater value than the use of opaque solutions. I feel that with the latter the findings are less distinct and for the differentiation of intra and extra peritoneal rupture the diagnoses can be made by the detection of air in the abdominal cavity, similar to the x-ray technique for diagnosis of perforated peptic ulcer.

In carcinoma of the bladder, cystography is a valu-

able adjunct to cystoscopy. The treatment of bladder carcinoma depends on early recognition, situation of the tumor, and degree of malignancy. The small papillary or pedunculated lesions can best be treated by transurethral methods, consisting of tumor removal and electro-coagulation, followed by deep x-ray therapy. In the highly malignant types of bladder tumor, further x-ray developments may offer better prognoses. While an occasional brilliant result is reported with deep x-ray therapy of prostatic malignancy, the results, as a whole, are entirely disappointing. Perhaps further x-ray developments will also be the solution. Transurethral operation for relief of obstruction affords relief in many cases, but the subsequent infections, hemorrhage and recurrence of obstruction that occur so often makes one skeptical of this procedure as the only routine to follow. Some of these cases should have earlier suprapubic cystostomy. For the relief of pain from metastases, x-ray therapy is a valuable aid.

### PETROLATUM OIL PNEUMONIA IN AN ADULT

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Lipins deposited in tissues cause an inflammatory reaction, in character depending upon the lipin substance or mixture introduced. Cholesterol compounds, as in Hand-Schiller-Christian's Disease, stimulate a rather definite form of chronic granulation tissue, while other lipins (such as neutral fats or phosphatides) cause inflammatory changes not so obviously characteristic. Paraffin and liquid petrolatum also stimulate chronic granulation tissues. When such oily or lipin substances enter the lungs either by inhalation or through the circulation, chronic granulation tissues are produced. The oil or fat droplets present in these granulation tissues afford a clue as to the etiologic agent. The inflammation induced in the lungs by aspirated oils or lipins has been designated "lipoid pneumonia."

Lipoid pneumonia in man was first described by Laughlen<sup>1</sup> in 1925. He reported the case histories and autopsy findings of three children and one adult. His attention was first called to the unusual microscopic picture of pneumonia associated with large numbers of mononuclear cells which contained unstained vacuoles of various sizes. By the use of sudan III these vacuoles were demonstrated to be droplets of oil. The oil had been administered as nasal drops to two of the children, but had been given by mouth to one child while it was stuporous. The adult

(who had multiple paralysis of the face, arms, legs, soft palate, vocal cords, and accessory muscles of the larynx) was 37 years old and had taken mineral oil by mouth for four and a half months. Swallowing had been very difficult and the oil had been placed far back in the throat to aid the patient in getting it down. Laughlen demonstrated by experiments on rabbits that oil finds its way into the alveoli of the lung when it is administered in the nose and throat in sufficient quantities.

Since this report, there has been one other case reported in an adult by Fischer-Wasels. This was a woman 86 years of age who had used large quantities of paraffin oil with menthol as nasal drops for over twenty years. The clinical picture was that of a progressively malignant pulmonic tumor. Autopsy revealed a massive tumor-like fibrosis involving regions about the hilus of both lungs. Histologic examination showed a dense scar-like connective tissue formation with numerous fat droplets.

There has been a total of 45 (1, 3-8, 10) cases of lipoid pneumonia reported in infants and children up to seven years of age. Of the 45 cases, 34 have been reported within the past year with splendid reviews of the subject by Robinovich and Lederer<sup>6</sup> and by Goodwin<sup>8</sup>. Different types of oils were responsible for the pathology in the reported cases. Milk fat, cod liver oil, and liquid petrolatum were thought to be the cause in most instances. Pinkerton<sup>9</sup> has shown that animal, vegetable and mineral oils are all capable of causing reactions in the lungs, but that they vary greatly in the severity of these reactions. He believes that the free fatty acid content originally present in the oil, and the rapidity with which hydrolysis progresses are the big factors in determining the severity of the reaction.

*Neutral vegetable oils* (sesame, poppy seed, and olive oil) cause very little reaction in the lungs in the absence of infection. *Animal oils* (milk fat and cod liver oil) may produce a marked consolidation of the lungs in a few days.<sup>9</sup> "The consolidation is found microscopically to be due partly to the presence of large mononuclear phagocytes, which fuse to form giant cells, but principally to connective tissue proliferation. The degree of fibrosis and the rapidity with which it is produced vary considerably with the different oils." *Mineral oil* is quickly emulsified



in the lungs and is soon taken up by many phagocytic mononuclear cells. This causes a consolidation in some areas because of the large number of cells that are packed into the alveoli. In the absence of infection, and unless too much tissue is involved, this reaction may cause no symptoms and the oil-laden phagocytic cells are expectorated or pass through the alveolar wall. They may remain in the parenchyma of the lung or they may enter the lymphatics and be carried

—these are all factors that must be considered in the final analysis. However, it seems important to stress the point that oil put into the nose or throat can get into the lungs without any cough or obvious symptoms. Also, that oils once reaching the lungs can set up a very definite pathological reaction which can be recognized microscopically. Further, that infection at times does develop around this reaction and the whole process may lead to death.

Many of the infants and children reported with lipoid pneumonia have not been healthy youngsters and one of the two adults reported was bedfast with multiple paralysis. This case occurred in an old man who was up and about and who had demonstrable pharyngeal reflexes. There is no doubt that the lung tissues have suffered repeated insults from mineral oil used as a nasal spray for a great many years. There-

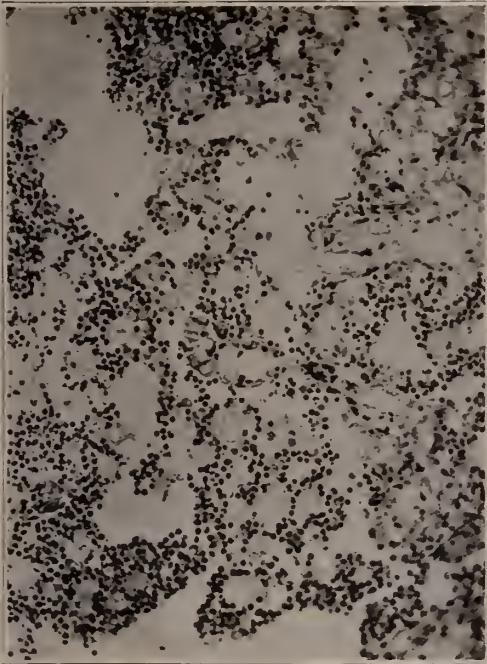


Fig. 1. Acute pneumonic process with mononuclear cells containing oil. There is some polymorphonuclear infiltration.

to the neighboring lymph nodes. The process of healing is by fibrosis and giant cell formation. Pinkerton<sup>9</sup> has demonstrated that with rabbits this healing does not begin for two or three months.

An infection may superimpose upon these tissues infiltrated with oil and the presence of this infection may be a sufficient complication to lead to death. The question naturally arises whether a given patient might not have developed a pneumonia anyway, and this allows one to speculate as to whether or not the oil had any real bearing in the case. The quantity of oil reaching the lung, the kind of oil, the number of times the accident occurred, the amount of lung tissue involved, and the physical condition of the patient at the time of the accident or repeated accidents

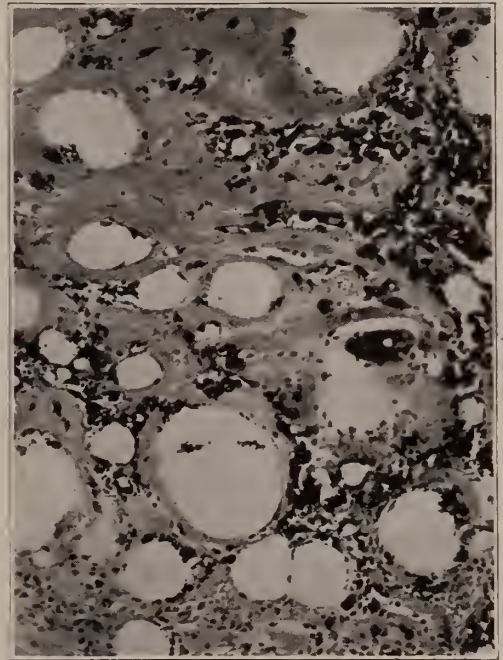


Fig. 2. Old scar with oil included in it.

fore, it seems wise to report the history and autopsy findings, and to point out again that there exists a pathological condition known as lipoid pneumonia which is caused by the presence of oil in the lung tissues.

*Case Report.* The patient was 96 years of age and had been very well for over 60 years. At the age of 19 he had pulmonary tuberculosis which had been arrested. Sixty years ago he had two or three very profuse pulmonary hemorrhages. Since that time he had had no symptoms referable to his lungs until ten years ago.



During the past ten years he had had two or three periods of hemoptysis each year which lasted four to five days. None of these were of any great size. No cause for this bleeding could be found except the old apical tuberculosis which by x-ray looked healed. The sputum was always negative for tubercle bacilli. The last attack of hemoptysis occurred in March, 1934. There had never been any cardiac history and the blood-pressure had varied between 120/80 and 180/110 for twenty years.

For many years the patient had complained of a dry nasal mucosa and on various occasions he had been given a nasal spray of mineral oil by different doctors. He used this at regular intervals, but it is not known when it was used the last time.

On June 18, 1934, the patient was seen at his home, because he thought he was developing a cold. He had no temperature, nasal discharge, or sore throat. There was a non-productive cough, but this had been a symptom of many years' standing.

He was seen the next three days at his home, but had no temperature or any alarming symptoms. The acute illness began June 25. He had been out during the day attending to business, but in the early evening when he was seen he had a temperature of 103 and looked very sick. There was some cyanosis and effort caused marked dyspnea which had never been present before. Examination of the chest revealed numerous subcrepitan rales over both lower lobes posteriorly, but no abnormal breath sounds. There was no pleural pain or sputum. A diagnosis of bilateral bronchial pneumonia was made.

During the next twelve days, except for a terminal temperature of 102.8, the rectal temperature varied from normal to 101. The lung findings did not increase materially, but rather seemed to clear up over the right lower lobe. The cough was non-productive during the entire illness and no pleural pain was ever complained of. The patient gradually became weaker and died July 6, 12 days after the onset of the acute illness and 17 days after he first began to feel indisposed.

The only laboratory finding of importance was the white blood count. The first count (taken June 26) was 17,500 and this gradually increased until it reached 59,000 (the day of death).

*Autopsy.* The essential pathology was confined to the lungs. There were a few fibrous adhesions between the left upper lobe and the parietal pleura, and there were extensive fibrous adhesions between the right lung and the parietal pleura which completely obliterated the pleural cavity. The right lung weighed 545 grams and the left lung 585 grams.

The tissues of the left upper lobe were crepitant throughout and the surfaces made by cutting had the usual grey-red color, but there were no obvious regions of consolidation. The lower lobe was heavy and boggy and the upper one-third of the tissues were non-crepitant and firm. On surfaces made by cutting there was the usual red-brown upper portion, but below this the lower two-thirds were consolidated and the tissues were grey-red and wet. In the lower portion of the left

lower lobe, the tissues were discolored green-black in a place 6 cm. by 4 cm. by 4 cm. The tissues here were very firm and slightly puckered and contained a large amount of scar tissue. The visceral pleura corresponding to this region was considerably puckered. The lining of the main bronchi opened out to the smaller ramifications and was hyperemic and within the lumen there was a moderate amount of mucopurulent material.

The right lung tissue was moderately crepitant throughout except in the apex. The surfaces made by cutting the three lobes presented a moist red-brown-grey crepitant lung tissue in which there was no gross evidence of consolidation. In the apex of the upper lobe, the lung tissue had been completely replaced by a firm

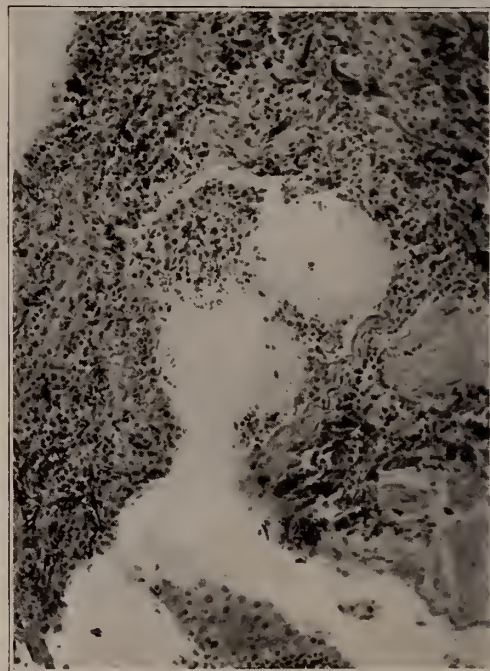


Fig. 3. Oil and granulation tissue beneath bronchial mucosa.

fibrous tissue 5 cm. by 4 cm. by 3.5 cm. On surfaces made by cutting this mass, there was a firm grey fibrous tissue containing a few moderate sized blood vessels with thickened walls. The lining of the bronchi was hyperemic and the lumen contained a slight amount of mucopurulent material.

Sections were taken for microscopic study from the scar in the right apex, the right lower lobe, the left upper lobe, the left lower lobe, and the discolored area of scar tissue in the left lower lobe described above. The scar in the right apex showed a complete replacement of lung tissue by fibrous tissue. There were large blood vessels with much scar tissue about them, but no evidence of any active or recent tuberculosis was seen. Blood pigment was not observed in this tissue. The left upper lobe showed some areas of fibrosis and a few droplets of oil were observed in the tissue.

The lower lobes showed the greatest changes. In

both there was a great increase in the fibrous tissue of the lung stroma. Enmeshed in this were innumerable droplets of oil. Some of the smaller particles were engulfed in mononuclear cells and appeared as vacuoles in the hematoxylin and eosin stains. The larger droplets were apparently just deposited in the connective tissue. With the Scarlet R. stain in formalin-fixed tissues, these vacuoles and droplets could be demonstrated to be oil with the same staining qualities as mineral oil.

The discolored area of scar tissue in the left lower lobe proved microscopically to be fibrous tissue in which were completely walled off droplets of oil. Carbon pigment was deposited in the different layers of fibrous tissue.

When the microscopic study of the lung tissues had been completed, the diagnosis was changed to lipoid pneumonia, and the long-continued use of mineral oil as a nasal spray was recalled and incorporated in the history. After the gross and microscopic study of the lungs, it is very hard to explain the repeated attacks of hemoptysis on the basis of the old tuberculosis. Although the last attack had occurred just four months before death, no evidence whatever could be found of any signs of activity, and there was no evidence of any hemorrhage in the old healed lesions. The pharynx and the base of the tongue were carefully examined for varicosities and none could be demonstrated. Microscopically, it could be shown that the presence of the oil had produced some lesions that appeared to be very recent (Fig. 1) and others in which the oil was encapsulated by dense scar tissue (Fig. 2). This would indicate that the accident had been repeated over a long period of time. In some of the more recent lesions oil could be found beneath the bronchial mucosa and even up against the capillary walls (Fig. 3). Around some of these areas the tissues were infiltrated with plasma cells and lymphocytes. The question arises as to whether or not an area of this type might have caused bleeding into the bronchi. Certainly such chronic granulation tissue is capable of doing so. No such case has ever been reported that I know of, but I think this possibility might well be considered as the cause of the repeated attacks of hemoptysis.

*Note.* I wish to express my appreciation to Dr. Edwin F. Hirsch, pathologist at St. Luke's Hospital, for his many suggestions and help in preparing this paper. It was in his laboratory

that the autopsy was made and that the diagnosis was first established.

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#### THE MERITS OF BLOOD TRANSFUSION IN SEPTICEMIA

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First employed in its modern sense during 1490 on the dying Pope Innocent VIII, the art of blood transfusion received its greatest impetus subsequent to the brilliant discovery of the circulation by Harvey in 1616, and the meritorious efforts of Richard Lower of Oxford in 1665 and the London obstetrician, James Blundell in 1834. Thanks are due Prevost and Dumas, Magendie, Brown-Sequard, and Oscar Hasse for their contributions to the physiology of the blood, and Bordet, Ehrlich, Arthus, Landsteiner, Hektoen, and others, who contributed to its immunological aspect. The technique of blood transfusion developed by Correl, Crile, Bernheim, Curtis and David, Kimpton and Brown, Ziemssen, Unger, Huston, and others converted its art from a myth three centuries ago to an invaluable weapon against disease.<sup>1</sup>

A remedy par excellence in the acute hemorrhages and the hemorrhagic diseases, blood transfusion has not achieved equal praise in the therapy of septicemia. Its popularity in this regard has ebbed and flowed more or less periodically, many extolling it, many casting it into disfavor. The literature contains many favorable and many unfavorable reports regarding the use

<sup>1</sup>Delivered before the clinical conference of Englewood Hospital, April, 1935.



of blood transfusion in septicemia. Neff<sup>2</sup> reports an infant of 3 months and a child of 3 years of age with septicemia, both of whom recovered after blood transfusion and he also describes two cases of erysipelas treated by blood transfusion, one 3 weeks and the other 6 months of age, both of whom died. Stetson<sup>3</sup> reports 3 cases of streptococcus septicemia, two showing streptococcus hemolyticus in the blood, both dying, and one with streptococcus viridans in the blood surviving. Kordenat<sup>4</sup> summarizes 12 cases of septicemia treated by blood transfusion and in the only two that recovered streptococcus viridans was found in the blood.

In their experience with 212 blood transfusions in 189 cases at Mt. Sinai Hospital, N. Y., Ottenberg and Libbman<sup>5</sup> observed the life saving influence of blood transfusion in 4 of 10 cases of sepsis due to staphylococcus aureus and streptococci, the cases including septic abortion, pyemia, and osteomyelitis of the femur amongst other causes. In the endocarditides they found transfusion a means of rendering the blood bacteria-free not infrequently and they urge that "in prolonged infection transfusion of normal blood may be extremely helpful and should not be too long delayed."

Stetson<sup>6</sup> studying chronic empyema and osteomyelitis on the children's surgical service at Bellevue Hospital, N. Y., remarks, "It is most gratifying to see how well these children do with an occasional transfusion. Their secondary anemia is overcome, their appetite and digestion immediately improve and in a surprisingly short time their wounds begin a healthy granulation. The danger of intercurrent infection is also lessened and their convalescence greatly shortened." In cases of sepsis managed by transfusion the number of colonies of bacteria cultured from the blood decreases steadily in number and ultimately becomes sterilized in a sufficient number of cases to make the method unparalleled. He treated by this method 68 cases of sepsis due to malignant endocarditis, mastoid with sinus and jugular thrombosis, scarlet fever, post partum sepsis, osteomyelitis, sepsis from cervical glands, cellulitis of face, sinusitis, and brain abscess. Of the 39 cases having positive blood cultures streptococcus hemolyticus occurred in 19 with 10 recoveries and 9 deaths, and streptococcus viridans was found in 8 cases, 6 of which were malignant endocarditis and of course fatal. The 7th oc-

curred in a baby who developed sepsis following tonsillectomy and it recovered after 2 blood transfusions. Staphylococcus aureus was found in 12 patients, 9 dying and 3 living. This organism is the deadliest of the infecting bacteria once it has entered the blood stream. Some of this group showed negative blood cultures. Stetson feels that many patients can be saved if blood transfusion is begun early and is given every 48 hours until the blood cultures become sterile and until clinical improvement is sufficiently marked to warrant stopping. Pneumonia and meningitis are the most feared complications of sepsis, and if the patient be so fortunate to escape these he

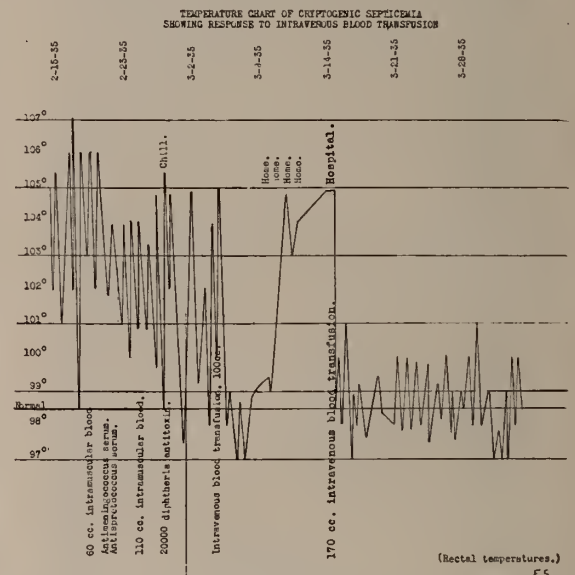


Chart. 1. Temperature chart of a case of cryptogenic septicemia, showing a drop to normal after intravenous blood transfusion

has a 50% chance of recovery with blood transfusions.

In 1929 the British Red Cross Society<sup>8</sup> announced that of 1215 blood transfusions given by them, "57% showed good or very good results; 22% showed satisfactory improvement; 14% improved and then died and 7% showed no appreciable results." In contrast to this is the report of Polayes and Morrison<sup>9</sup> who analyzed 1500 blood transfusions performed on 1000 patients suffering from various diseases and found 71.7% benefited not at all or doubtfully. Unger<sup>7</sup> remarks that with 29 of his cases suffering from toxemia and sepsis given blood transfusions 9 survived and 12 were temporarily improved.

Landon<sup>10</sup> has analyzed 100 cases of blood transfusion at Francis Willard Hospital, N. Y.,



and concludes that it is valuable as an adjuvant in the pre and post operative care of mastoiditis, sinus thrombosis, and empyema, especially when they occur as complications of scarlet fever and measles. Distinct benefit is observed in bronchopneumonia, complicating measles and pertussis and it is strongly indicated in anemia and malnutrition. Hays<sup>11</sup> declares that transfusion bestows a wholesome effect upon diseases of the mastoid often precluding surgical measures.

The reports of Hebert,<sup>12</sup> Steel,<sup>13</sup> Little,<sup>14</sup> Wekesser,<sup>15</sup> and Tzanck, Huber and Abricossof<sup>16</sup> point to immuno-transfusion as a more desirable and more efficacious method in septicemia.

The variable effect of blood transfusion may be interpreted on a bacteriological and pathological basis. Septicemia due to the staphylococcus has a mortality of 68%, that due to streptococcus 32%, to *B. coli* 40%, to micrococcus tetragenus 50%, to *B. pyocyaneus* and to *B. mucosus capsulatus* 100% fatality. The strains of staphylococci and streptococci which are the common organisms encountered in septicemia, the second found more frequently than the first, may vary greatly in virulence and some of these strains possess an unusual capacity to multiply at alarmingly rapid rates and in huge numbers. The onslaught may be so severe as to completely overshadow the opsonizing, precipitating, agglutinating, and phagocytizing powers of the blood. The staphylococci have a particular tendency to metastasize to the various organs and there grow as foci which in turn may metastasize thus producing an interminable discharge of bacteria into the blood. The streptococci prefer to attack the valves and endocardium and emboli are constantly broken off from these, spreading elsewhere. With septicemia so advanced little can be hoped from blood transfusion. Too frequently blood transfusion is condemned when it is used in the terminal stages of an advanced blood stream infection. It is here advocated that to be effective this therapeutic measure must be employed very early before the patient is overcome by toxemia, before the normal humoral and cellular responses to infection are overwhelmed, and before the invading bacteria have multiplied and metastasized to any large degree. Transfusion should be given frequently, preferably every 48 hours, as suggested by Stetson and in adequate amounts during the entire course of the septicemia.

The following case is instructive because of the distinct response conferred by blood transfusion:

Charlotte V., aged 22 months, of normal birth, and the only daughter of healthy parents, had enjoyed freedom from illness except for an acute otitis media at the age of one year and an occasional cold since. Breast and bottle-fed during the first year, with cod liver oil and orange juice given at 1 month, the feeding history up to present age is faultless. Her teeth appeared, she sat up, talked and walked in the usual periods of time. The parents noted, however, that she had always been pale. On 2-12-35 the father declared that the baby had suddenly become feverish and described the temperature as being so high that a cigaret applied to the skin would burn." The baby was irritable and cried but no other symptom was present. The temperature was 106.5°; the baby was alert and appeared well; the skin, very pale, hot and dry, the eyes clear, the ear drums normal; the nasal chambers negative; the tongue coated; the tonsils perhaps slightly redder than normal; no findings in the lungs or heart; abdomen soft and slightly distended; no palpable spleen or tender kidney; reflexes normal; no Kernig or rigidity of the neck.

The following morning the temperature was 105.5°; the baby had cried all night. Physical examination failed to point to a diagnosis. That evening the temperature was 102°, the following day 106.8°, and on 2-15-35, 107°. On 2-16-35 the child was brought to Englewood Hospital, active, playful, and in a surprisingly good physical state. Dr. Henry Boettcher found the ear drums negative, but performed a bilateral myringotomy and no serum or pus exuded. The temperature assumed a septic course, rising from normal to 105°, 106°, 107° daily. The white blood count was 18,050; the red blood count 3,900,000; color index .9; hemoglobin 70%; the urine showed a very faint trace of albumin with 20 leucocytes per high powered field; the stools were negative for parasites and blood. The blood was negative for typhoid, paratyphoid A and B and undulant fever; the blood smears were negative for malaria; the differential blood picture showed 29% lymphocytes and 71% neutrophils and the erythrocytes showed marked achromia; the spinal fluid Wassermann was negative and the spinal fluid showed 2 lymphocytes per cubic millimeter; the blood cultures were negative. The x-ray of the mastoids on 2 occasions showed no evidence of infection; x-ray of the chest showed negative lungs and the heart slightly enlarged to the left. Flat film of the kidney region showed no evidence of calculi but the distention of the small bowel and colon suggested to Dr. R. J. Maier, the roentgenologist, peritoneal infection. The diagnosis was septicemia of cryptogenic origin.

On 2-19-35 60 cc. of father's blood was given intramuscularly with no effect on the temperature. On 2-22 and 2-23 15 cc. of antimeningococcus serum and 10 cc. of antistreptococcus serum were given intramuscularly. On 2-25 110 cc. of father's whole blood was given intra-

muscularly. The temperature now reached a maximum of 104° but on 2-28 the temperature shot up to 106° with chill. At this point 20,000 units of diphtheria antitoxin were given intramuscularly. The temperature continued to soar from normal to 105° daily. At the suggestion of Dr. Julius Hess 100 cc. of father's citrated blood was given intravenously on 3-6-35. The temperature (for the first time in 4 weeks) remained normal on 3-6, 3-7, 3-8, 3-9. On 3-10-35 the child was discharged but the temperature at home began to resume its former course, reaching a maximum varying between 103° and 105°. On 3-15-35 with a temperature of 105.2° the child was returned to the hospital and given 170 cc. of father's citrated blood intravenously. Promptly the temperature fell to normal, rising to 101° the following day but thereafter up to 12-16-35 (the time of the writing of this paper) the temperature has been normal or very close to normal. On discharge from the hospital the white blood count was 10,750; the red blood count 4,300,000 and the hemoglobin 71%.

*Summary:* Blood transfusion is a most valuable therapeutic measure in septicemia.

It is best given intravenously early in the disease, every 48 hours, in adequate amounts until clinical improvement is detectable.

Immuno-transfusion is the superior method.

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### MODERN PRINCIPLES IN THE TREATMENT OF EARLY SYPHILIS

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DECATUR, ILL.

The proper regulation and control of syphilis is today one of the major public health problems. Recent statistics furnished by the Illinois State Health Department show that there has been an increase within the past few years in the reported number of cases of both syphilis and gonorrhea. This is evidence of the need for a thorough, intensive plan of treating the infected individual, as it is only by prompt and energetic treatment of the infectious cases that one may hope for reducing the incidence of the disease. It is not within the scope of this paper to consider the innumerable vital public health problems of syphilis, but to present some recent developments regarding the clinical management of primary and early secondary lues.

Our present day information shows that, while much has been done to provide adequate medical care for the syphilitic patient, many of our poor results and late tragedies of this disease may be attributed to an insufficient evaluation of the amount of treatment required to give the greatest degree of security as to cure and the prevention of relapse.

In a recent study compiled from a survey of 10,000 cases from the United States Public Health Service clinic at Hot Springs, it was found that 57% of these patients had not received previous modern anti-luetic therapy. In 2,443 of the patients from whom data of previous treatment could be obtained, 16% had had no

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treatment for 6 years prior to their entrance to the government clinic.

It is by no means intended to place the blame for inadequate treatment upon those administering the treatment, for the education of the patient about the seriousness of the disease and the time required for cure is still the great barrier towards control of the situation. The difficulty revealed in obtaining the cooperation of patients may be further seen from some of the figures published in recent reports of the United States Public Health Service of cases treated in five of the larger syphilis clinics in the country. From the reported series, out of 75,000 cases of syphilis, of which 6,807 were cases of early lues, there were 1,360 patients under observation for 2 years or longer, and only 295 cases returned for observation for the desired 5 to 10 year period after injection and institution of treatment.

The conclusions drawn from the results of this survey will serve as the basis of this paper, for the accomplishments of such a study, prepared by some of the outstanding syphilologists of the country, can be used in outlining fundamental principles of treatment.

The first aim must be the recognition of the disease in its earliest stage, or as termed by Pusey, the "Golden Opportunity." Every suspicious genital lesion, no matter how trivial or superficial it may be, should have a dark field examination for diagnosis. The chancre in its earliest phase may appear as only a slight erosion or skin abrasion, entirely lacking the characteristics usually seen in the typical lesion.

Within the past 2 years the State Department of Health has developed facilities for dark field diagnosis of suspected primary lesions, a service which is of utmost value to those not having adequate facilities for performing this method of examination. The material consists of capillary tubes, in which the serum from the suspected lesions can be shipped to the department laboratories. The filled tubes are immersed in vaseline containers for mailing. Dark field diagnosis by this technique has been reported accurately in 85% of the cases, which makes this an invaluable aid for diagnosis in the seronegative state.

Stokes and his collaborators have shown that cure in the seronegative primary stage showed 83-86% best results, with an average of 71.4% in contrast to only 64-70% best results and 53.3% average when the disease has gone into

the primary seropositive stage. Furthermore their statistics show that fixed positive blood tests develop in 3.8% when treatment is started in the seronegative stage, 14.5% in the seropositive primary stage, and in 13.3% in the early secondary stage. Further significance is seen from the figures that of the fixed positive cases in early lues, 30.6% developed neurosyphilis, while amongst those becoming Wassermann negative only 18% had neurosyphilis. From a review of these figures it is evident that as a public health duty, every physician should avail himself of every opportunity for diagnosis in the earliest stage of the disease, and particularly should avail himself of the present facilities for dark field examinations whenever his own may be lacking.

In the management of early syphilis the objectives to be sought are the control of infectiousness and the prevention of relapse. Needless to say the earlier the treatment is started and the more intensive the mode of therapy, the less likelihood there will be of further infections through contact with the infected individual. No matter what form of therapy is advised, the full cooperation of the patient must be obtained. No plan of therapy will be successful without a thorough understanding of the situation between the physician and patient at the outset, including a proper interpretation of the findings and diagnostic tests, and an explanation of the amount of treatment essential and the time to be consumed in obtaining this treatment. It is to be borne in mind that the syphilologist must treat the disease adequately, and also undertake to treat the patient from the sociologic aspect. In no other disease is the physician-patient responsibility more important. The physician must evaluate the question of cure, and advise as to the methods of preventing further infection, and, of utmost importance, he must emphasize the danger of discontinuing therapy as soon as the presenting signs or symptoms of the disease have disappeared sufficiently to suggest to the patient that the disease has been arrested.

In the control of infectiousness the arsphenamines are of greatest value. However, present day views of therapy are that no case of early syphilis should be treated by arsenicals alone. On the other hand no form of therapy should attempt to treat early lues by heavy metal alone, notwithstanding reports of the spirocheticidal properties that have been attributed to bismuth.



However because of its spirocheticidal properties, though vastly inferior to the arsphenamines in the control of infectiousness, bismuth has largely replaced mercury in the treatment of syphilis. The combined use of one of the arsphenamines and bismuth will give the patient safety from further infectiousness and the greatest safeguard against mucocutaneous relapse and neuro-recurrence.

The concept that the arsphenamines predispose to or aid in the development of neurosyphilis has not been borne out in a study by O'Leary and Rogin. In an analysis of 500 unselected cases of neurosyphilis it was found that the most serious involvement occurred in cases having had no arsenical therapy as compared to those having, what at this time may be termed adequate or inadequate arsphenamine therapy. Of this series, 85% of them had not received arsphenamine therapy in the early stages.

Of the forms of bismuth used in the treatment of lues, it is felt that the soluble, lipo-soluble and the insoluble bismuth preparations can be named in the order of their infectiousness controlling properties.

In the early treatment, when there are present open infectious lesions, the aqueous or soluble bismuth preparations are most efficacious because of the rapid absorption and spirocheticidal action. These preparations of bismuth have their advantages in that they cause an earlier disappearance of the *Spirochaeta pallida* in open primary and secondary lesions, and also produce an earlier therapeutic response, causing more rapid involution of the lesions. With these factors in mind it is obvious, that the aqueous and oil soluble preparations are of most value in the initial course of therapy in early syphilis. However because of the ease of administration, and the freedom from local irritation that is experienced with some of the soluble preparations, they should not supplant the insoluble preparations in therapy. The latter, while absorbed and eliminated more slowly are advantageous because of their prolonged presence in the body and constant spirocheticidal action.

Of the insoluble preparations, the various suspensions of the salicylate in oil, have been found very effective. They have been found to be relatively free from complications, have practically no harmful cumulative tendencies, are relatively free from local reaction, and are of

distinct advantage in causing serologic reversibility. Better results are obtained by continued treatment with slowly absorbed drugs than by those more rapidly absorbed and eliminated.

With the increasing use of bismuth preparations it is important to be aware of the various reactions that may appear following its continued administration. While the literature is replete with the various types of arsenical accidents it has only been in the past few years that the untoward reactions that may follow the use of bismuth have been observed and reported. Bismuth should never be given intravenously, as several fatalities have been reported following this method of injection. In giving it intramuscularly, the plunger of the syringe should be withdrawn to avoid possibility of getting the drug into the blood stream. Furthermore, Irgang *et al* found that bismuth had no spirocheticidal effect when given intravenously.

Dermatoses of various types have been reported following its use. They may be urticarial, pityriasis-rosea like, eczematoid, pemphigoid or herpetic in type. Herxheimer-like reactions and nitritoid crises have been observed following bismuth. Because of the severe stomatitis that may follow its use, it should never be used in the presence of oral inflammations. Cases of agranulocytosis, aplastic anemia, purpura, and gastrointestinal hemorrhages with severe diarrheas have been observed. Delayed bismuth reactions are usually the result of liver and kidney damage due to the accumulation of the drug following slow absorption of too large doses.

The results of the survey formed by the cooperation of the clinics with the United States Public Health Service were based on studies of four groups of cases; those on continuous therapy, in which the patient received arsphenamine or a heavy metal constantly during the first year of the disease; a second group that received intermittent treatment, that is, courses of treatment interrupted by periods of complete rest from therapy between courses; a third group receiving totally irregular treatment, cases that did not attend regularly for treatment, and a fourth group receiving short periods of intensive therapy, that is 3-4 injections of an arsphenamine alternating with heavy metal with long periods of rest between the combined arsphenamine-heavy metal courses.

It was found that continuous treatment, with-

out any rest periods during the 12 month period gave the results superior to any other form of intensive or intermittent therapy. With this form of therapy there was reversal of the Wassermann test in 81.8% at the end of the year, whereas only a 37.3% reversal was seen with interrupted therapy, and 4.7% reversal in the irregularly treated group. They further concluded then that the reason for the irreversible positive Wassermann test in early lues is attributable largely to rest intervals created by intermittent or irregular plans of treatment.

Furthermore, results at the end of 2 years with continuous treatment were termed satisfactory in 79.7%; with intermittent treatment it was 65%; with irregular treatment 33.3% and with intensive forms of treatment 23.4%, showing that the best safeguard against neuro-recurrence, serologic reversal, and mucocutaneous relapse lay in continuous therapy.

In administering continuous therapy a minimum of twenty injections of an arsphenamine, and twice that many heavy metal injections should be given. The treatment must be continuous in nature, with a rest of a month between the courses of the arsenical, during which time the patient should receive a heavy metal. During the arsenical courses the patient receives one dose weekly with an injection of bismuth between doses. The courses are so arranged that there is overlapping of the drugs.

For routine use, neoarsphenamine enjoys the greatest popularity because of its relatively easier method of administration than arsphenamine. The amount of neoarsphenamine in each course should be approximately 5 grams, given in divided doses. Individual doses greater than 0.6 gram are not warranted because of the greater intolerance to the drug in such dose, and because of the increased danger of reactions.

From an analysis of the above figures the great danger from the rest interval or lapse of treatment in managing early syphilis can be recognized. The formula of treating by schedule and not by the serologic test should serve as the basis of modern syphilologic practice. All patients should have a detailed, systematic presentation of the plan of therapy at the beginning of therapy. The figures given above show the fallacy of former methods in which the patient was given a "course" of treatment and then an undeserved

rest, with a resultant greater possibility of relapse.

Continuous therapy affords a better means of keeping the patient under control. Regularity of attendance is more easily accomplished by this method, for in the past many patients stopped therapy prematurely because of the easily abused rest interval. As a public health measure in the control of the disease, continuous therapy, especially if instituted in the earliest stages of the disease, will be our greatest factor in obtaining a cure and in preventing further infections.

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## DISCUSSION

DR. S. J. ZAKON, Chicago: I wish to compliment Dr. Burstein. We in Chicago and he in Decatur have come practically to the same conclusions. There is one other aspect in the treatment of syphilis that is probably of great importance and that is the economical aspect. I think it is important for the physician not to hurt the patient, not only by the treatments but also by the fees charged for the treatments. I think it is possible in an early case of syphilis to make arrangements with the patient to pay on a budget plan for the entire year and a half's treatment instead of for a single treatment and to tell the patient that it is much better for him not to receive any treatment than to receive only two or three injections and quit.

Should the patient be a pauper or unable to pay, it is the duty of the physician to see that he should receive proper free treatment at some state institution. This duty we as physicians owe not only to the patient but



to the state as a public health measure to prevent further infection.

One thing more; I wish to warn the physician against treating syphilis according to the detail men's outline, sent out by one pharmaceutical house or another. Select your drugs and be sure that the drug is potent, Council accepted, and do not listen to the various stories of the detail men. Treat early cases by system, a system adopted if possible on a state basis or a national basis, for only then will we ever be able to eradicate the disease.

DR. MARCUS R. CARO, Chicago: It has been a pleasure to hear the therapy of early syphilis discussed so fully. I should like merely to emphasize the difference between the treatment of early and of late syphilis.

In late syphilis we are dealing with an individual whose tissues have been damaged by the disease. The damage is usually beyond complete repair, and we must satisfy ourselves with aiming for the arrest of the disease rather than a complete cure. The treatment to be selected here must be conservative enough not to prove too great a strain for the damaged organs. The treatment in late syphilis must be individualized.

In early syphilis, however, we direct our attention more to the treatment of the disease than to the patient himself. We are dealing usually with an individual who is robust and young and who can tolerate the treatment well. In addition, we are dealing with a massive infection which endangers not only the patient himself but also all persons in contact with him. To safeguard the others we must make the patient noninfectious as rapidly as possible. To prevent the spirochetæ from becoming walled off in some deep focus we must attempt to eradicate the infection rapidly and as completely as possible. To these ends we should employ intensive therapy, and intensive therapy for these patients can be systematized much more than is possible in late syphilis.

Since our aim is to destroy the spirochetæ as rapidly as possible, the drug we should rely on chiefly in the early stage of syphilis is arsenic. Intensive therapy with neoarsphenamine or arsphenamine at the beginning of treatment is most important to cause a clearing up of the skin lesions, to produce a negative Wassermann reaction of the blood and to prevent a later relapse. Arsenic should never be used alone, however, but should always be given in courses alternating with those of the heavy metals. Bismuth and mercury, in addition to having a slight spirocheticidal effect, help to build up the tissue resistance against the infection. The treatment should be continuous for at least one year after the complete disappearance of all clinical manifestations of the disease. There should be no periods of complete rest from treatment during this time. It has been shown that in patients with early syphilis who have had insufficient treatment, stopping the treatment even for a month may produce lesions that are infectious again. Rest periods early in the course of the disease may result in a later relapse of mucocutaneous lesions or in a reversal of the Wassermann reaction of the blood.

I want to add a word of caution about performing a

Wassermann test of the blood too soon after the beginning of treatment. Once the diagnosis of early syphilis has been made, the indication is to give the patient intensive therapy for at least a year after all clinical manifestations of the disease have disappeared. A Wassermann test performed before the end of that period can be of no help because, even if the test should be negative, that would be no indication that it is safe to discontinue treatment. The danger of an early test lies in the fact that some patients rely entirely on the blood test. Should the patient find that his blood Wassermann reaction is negative at the end of one or two courses of treatment, he might be given a false sense of security and might feel that it is safe to discontinue treatment long before it is advisable for him to do so.

## MAL-UNION OF COLLES' FRACTURE AND ITS SURGICAL CORRECTION

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Different theories expounding the cause of deformity, pathological anatomy, the clinical manifestations, the prognosis and the numerous proper procedures in the treatment of Colles' fractures have been emphasized innumerable times during the last 150 years. That progress has been made and is continually being made regarding the different phases of this very frequent and aggravatingly difficult injury is proved by a study of the surgical literature. The more recent the article written, the more lucid and concise are the opinions expressed. Different clinics and fracture committees give rather optimistic reports regarding the incidence of disability. They show that good results are obtained in from 90 to 95%, moderately good results in from 5 to 10% and bad or poor results in only 1 to 3% of cases. These favorable reports are not the result of insincerity or errors in judgment, but they are based more on the function percentage than on the anatomical restoration of the parts involved. How many of us have treated patients for conditions other than at the wrist joint and have noted the tell-tale deformity at the wrist, usually ignored by the patient, of a former Colles' fracture? Usually, when questioned, the patient states that the wrist was painful and gave considerable trouble for quite a long time after the injury, but that eventually

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the symptoms subsided and fairly good use gradually returned. Casually observed, function here is very good but accurately estimated, the deformity is of considerable degree. At the radiocarpal joint, normal function is  $90^\circ$ , but by this deformity it is reduced to from  $20^\circ$  to  $45^\circ$ .

Pouteau in 1783 wrote a rather good description of Colles' fracture. In 1814 it was carefully described in detail by Abraham Colles, but it was not until 1847, when Robert W. Smith described it, that this fracture became known as Colles' fracture. Since that time, numerous descriptions have been written attributing the deformity to line of fracture, to comminution, to partial dislocation, to muscle pull, to inaccuracy of reduction, to rotation of the lower fragment around the ulna, induration of the tissues and to many other reasons.

The early deformity may be due to one or several causes. The lower fragment, even though it be anatomically reduced as seen by post-operative x-ray, has a tendency to tilt backward in a considerable number of cases. The initial injury causes a traumatic impaction of the fragments at the line of fracture. The posterior cortical plate of the lower end of the radius suffers considerably more comminution or crushing than the anterior cortical plate does. Therefore, most of the so-called comminution takes place on the posterior portion of the broken radius. When this fracture is disimpacted and the fragments properly aligned in position, the anterior cortical plate of the radius fits properly. The fragments at their posterior approximation must be separated slightly in order to hold the lower fragment in position so that the articular surface of the radius is at least at right angles to the long axis of the bone. If this position of the fragments is not maintained until callus formation occurs, the lower fragment is very apt to tilt backward and to result in limitation of palmar flexion. This alignment and position can be maintained in several ways.

A. J. Howe in 1879 maintained proper position by using anterior and posterior splints. The late Sir Robert Jones and the students of his school maintained proper alignment by anterior and posterior twisted malleable iron gutter splints. Thomas King of Melbourne maintains accurate position of comminuted Colles' fractures by skeletal traction.

Taking for granted that this type of fracture has been properly reduced, the further treatment consists in accurately holding the fragments in position by a trained assistant until immobilization is applied. This is best accomplished by exerting moderate traction, remembering that the anterior surface of the radius is a gentle curve, while the posterior surface is straight. To eliminate subsequent pain and to allow free movement of the fingers and the thumb, immobilization must be carried out to effectively include the radiocarpal and carpometacarpal joints. The rotatory movement at the radioulnar joint must also be controlled. Any splint which does not extend to and include the elbow will not prevent rotation of the forearm. Rotation movements are painful. This immobilization of the fragments in proper alignment can be effectively carried out by the sugar-tong splint first described by Simpson. This is a plaster of paris, molded splint which extends from the metacarpophalangeal joint upward over the back of the hand, the wrist, the forearm and is carried around the elbow and downward over the anterior surface of the forearm, wrist and hand to the metacarpophalangeal joint anteriorly. It is trimmed so that its edges will not meet laterally and is bound to the unpadded forearm and hand with a gauze bandage. Traction is maintained during this time by the assistant, and while the plaster splint is setting, it is properly molded into the reduced fracture area. When it sets, free movement of the fingers is allowed but all other movements, including rotation, are prevented. There is also free flexion of the elbow joint and a moderate amount of extension.

Crushing comminution of the posterior cortical plate occurs in a considerable proportion of cases of any adult age. Therefore, the fragments should be firmly held by a well molded anterior and posterior splint. The position of the hand and wrist, which are held in alignment with the arm neither in flexion nor extension and midway between pronation and supination, eliminates prominence of the lower end of the ulna. In pronation of the wrist, this prominent bulge is the head of the ulna. In supination of the wrist, this is caused by the styloid process. Any undue pressure caused by swelling can be very easily relieved by slightly loosening the gauze bandage and allowing the sugar-tong to separate slightly.

This sugar-tong cast can again be tightened when the swelling subsides. Lorenz Böhler taught us that stimulation of function is very important in the healing of fractures. This is carried out here by insistence on frequent movement of the fingers. Bone atrophy does not take place if this is carried out and x-rays at various times during the treatment will not show disuse atrophy. Immobilization is maintained until good strength and union occur; this varies from five to seven or eight weeks. Frequent inspection of the cast and arm is necessary. In the early stages, swelling and pressure should be expected. After the first week and through the later stages, when atrophy of the soft tissues occurs, there may be some shrinkage so that the cast may not fit properly. This may allow the lower fragment to tilt posteriorly, resulting in a deformity if it is not properly anticipated and prevented by padding.

*Malunited or Neglected Cases.*—The cases that have had no treatment as well as the cases that have had inadequate reduction of the posterior fragment, and also cases that have not been adequately immobilized so that the lower fragment tilted backward and the splint became loose, frequently result in malunion. In the great majority of cases, the symptoms which may have been marked in the beginning usually become mild and are not severe enough to necessitate surgical intervention. The disability is usually not marked. In a considerable number of cases, however, there is gross deformity with marked limitation of wrist flexion, atrophy and marked disability. The amount of pain and disability varies, depending on the proximity of the sharp fragments on the anterior aspect to the median nerve and to the flexor profundus digitorum tendons.

In a recent case with insufficient calcified calus, correction of the deformity can be effectively carried out by the method of the late Sir Robert Jones, which consists of manipulation and breaking up of the soft union by a not too vigorous use of the Thomas wrench. Subsequent treatment is similar to that used in an acute case. Old cases of malunion have to be treated differently because an indiscreet use of the Thomas wrench or other rough manipulation may cause a new fracture above the old site on the shaft

of the radius. It is preferable in this type of case to resort to an open osteotomy through a lateral approach. The radial nerve and extensors of the wrist are retracted posteriorly and the extensors of the thumb retracted anteriorly. The periosteum is split longitudinally and elevated. The malunion is exposed and the site of the osteotomy determined. A curved type of osteotomy is performed and is accomplished by using a sharp, rather large curved chisel, the convexity extending downward toward the wrist joint. When the bone at the fractured site has been completely and carefully cut through from side to side, the lower fragment may be easily slid around the cut surface of the upper fragment with a maximum of bony surface approximation, like a tire on a wheel, until the proper degree of alignment is obtained. Immobilization is now carried out similar to that in a fresh case. The period of immobilization before solid union takes place must be prolonged to eight or ten weeks.

#### CONCLUSIONS

1. Malunion in Colles' fracture is a frequent sequel to partial reduction or non-reduction of the acute fracture and to inadequate immobilization even after efficient reduction.
2. Deformity can be prevented by proper application of anterior and posterior molded splints.
3. Even though the fracture has been properly set, frequent inspection of the fracture position is advised.
4. Painful malunited fractures can be corrected in a recent case by manipulation.
5. Old malunited fractures can be corrected by the use of a curved osteotomy.
6. Prognosis after correction is good.

#### CASE REPORTS

Case 1. Miss E. P., aged 50 years, stenographer.

Complaint: Painful, swollen, weak left wrist; marked disability; limitation of flexion of wrist.

Examination: Malunited Colles fracture with typical swollen posterior tilting appearance. X-rays showed considerable posterior impaction and a fractured ulnar styloid.

History: The injury occurred three and a half weeks previously from a fall. Fracture was not diagnosed and she was treated with massage and heat, without improvement.

Treatment: Under general anesthesia the malunion was broken with a Thomas wrench. Fragments were properly aligned and plaster anterior and posterior



splint applied. Immobilization continued over a period of seven weeks. Patient returned to duty nine weeks from date of operation. This woman had considerable hypertrophic arthritis which delayed complete return of full functional movement in the hand and fingers for several months.

Case 2. Mrs. E. W., aged 28 years, housewife.

Complaint: Deformed, swollen right wrist with marked limitation of flexion and ulnar deviation; little pain.

History: Hand injured in a fall seven weeks previously. No doctor consulted, but a "bone setter" was visited who treated it for a sprain.

Examination: Typical malunited Colles' fracture with posterior tilting of lower fragment. X-rays confirmed the diagnosis.

Treatment: Under general anesthesia the malunion was broken by means of the Thomas wrench. The fragments were properly aligned and maintained with a complete cast. To hold the fragments in position full flexion was necessitated for eleven days, then gradual extension and finally removal of the cast at the end of eight weeks. Rotation movement was limited but returned completely at the end of four months.

Case 3. J. G., male, aged 59 years, pipe-fitter's helper.

Complaint: Painful swollen left wrist with inability to close fist without pain; marked limitation of wrist flexion and weakness.

Examination: Deformity due to posterior displacement of lower radial fragment. X-rays showed the malunion with a sharp angle anteriorly, resulting in severe misalignment.

History: Fractured by falling four and a half months previously. This was set and X-rays were taken; fracture reset the following day; in bed nine days. Plaster paris cast removed on eleventh day. Physiotherapy was administered for several months.

Treatment: Open curved osteotomy through lateral incision; proper alignment obtained. Immobilization maintained for four weeks. Good union at that time. Massage started. Pain disappeared from time of operation and function rapidly returned. Patient returned to duty as pipe-fitter's helper two months and seventeen days after operation.

Case 4. E. S., child, aged 9 years.

Complaint: Deformed right wrist with little or no pain.

History: This little patient fell on her hand ten weeks previously; the injured member was painful and tender for a few weeks, but she had no medical attention.

Examination: Colles' silver fork deformity of the right wrist; rather sharp angulation. X-ray shows Colles' malunion above the epiphyseal line through the radius only, at about a 30 degree angle.

Treatment: A lateral incision was made over the fracture site. Curved osteotomy done with convexity downward. Lower fragment slid around the cut surface until proper alignment was obtained. Immobiliza-

tion in a cast for four weeks. Subsequent X-rays show good position, alignment and union.

Examination four months later showed splendid function but a very slight radial deviation.

Case 5. E. D., a girl, aged 10 years.

Complaint: Deformed left wrist with some pain and inability to flex the hand.

History: This patient fell on her hand thirteen days previously and had not consulted a physician during this time.

Examination: A rather extreme Colles' deformity with displacement of the lower fragment posteriorly. X-rays showed a separation through the lower radial epiphysis with marked displacement and overriding. Apparently good, strong malunion was present.

Treatment: With a Thomas wrench the malunion was broken. Much difficulty was encountered because the union was quite strong. The fragments were then properly reduced and aligned. Immobilized with a lateral and posterior splint in flexion. Good union was prompt and the cast removed at the end of three weeks. This patient is now aged 21 and shows no effect of the epiphyseal injury at that time.

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#### THE VALUE OF EXCRETION UROGRAPHY AS ILLUSTRATED BY SOME INTERESTING CASES

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Excretion urography, while still a comparatively new method of examination, is at this time fairly well established. Von Lichtenberg in the *Journal of Urology*, March, 1931, states that this test gives information in three directions: "1. One learns visualization of the urinary tract and learns principally the relationship between the various parts of the urinary tract. 2. One obtains important information concerning the kidney function by roentgenological means. 3. One is able to interpret the dynamics of the urinary tract by observing the expulsion of uroselectan."

The intravenous method differs a good deal from the former method of retrograde pyelography because the retrograde injection gives a



dense pyelogram and we draw our conclusions entirely from the shadows of the ureter and pyelogram. In the intravenous method we have an entirely different proposition. The density of the intravenous pyelogram varies considerably, sometimes almost as dense as the retrograde method and sometimes scarcely discernible. The reason for this variety in density is: First, a normal kidney will excrete only about 5% of an opaque solution; about 10 to 12% can be injected. Second, we can only gauge the pyelogram when the pelvis is in diastole. If films are made during systole the pyelogram may not be satisfactory.

Intravenous pyelography brings to us better visualization of the kidney itself as it becomes saturated with opaque material. Serial films give us a better idea of the renal pelvis and ureters. We were accustomed to seeing ureters with catheters in them, which made them conform to certain curves which are not seen by the intravenous method. Ureters, we find, are much more irregular in their course than we thought.

Indications for making a test by excretion urography are:

1. All cases where there is suspicion of kidney trouble.

2. Differential diagnosis of abdominal tumors, ptosed kidney, tumor of kidney, polycystic kidney.

3. Calculi of kidney or ureter.

4. Renal tuberculosis.

5. Anomalies of the kidney.

6. Examination of the urinary tract after surgical procedures, i. e., transplanting of ureters, plastic on kidney, nephrectomy after traumatic injury to kidneys.

7. Where retrograde is impossible because of anatomical obstruction of urethra or ureter, tumors, or diverticulum of bladder, obscuring ureteral openings, hematuria and edema of bladder obscuring openings, contracted bladder, small children or very nervous individuals.

Considerable study must be devoted to this method of examination and experience must be had in order to thoroughly appreciate its value. We can always check it by the retrograde method. The following cases illustrate the value of this method:

Case 1. F., aged 55 years. Complained of pus in urine and "run down" condition for seven years.

Excretion urography: A large calculus probably oc-

cupping the whole pelvis of the right kidney. No excretion of dye from this kidney. Left kidney: normal excretion. Nephrectomy revealed a kidney which was literally one large pus sac. Complete recovery.

Comment: Excretion Urography showed no function in right kidney whose pelvis is occupied by a large calculus. It showed normal function on the opposite side.

Case 2. M., aged 48 years. Severe attack of renal colic eight years ago. Intermittent attacks since.

Excretion urography: Right kidney has a large calculus in pelvis with three large globular cavities, one laterally, and one in either pole surrounding it. Left kidney and ureter appear normal. There is a calculus in upper pole of left kidney. Patient died in coma following nephrectomy.

Comment: Excretion urography showed that despite the large calculus and the apparent damage suffered by the right kidney it was still able to perform a part of its function. The left kidney has been infected as indicated by calculus. Removal of the right kidney threw too much of a strain on the left kidney.

Case 3. M., aged 60 years. A large, fleshy man. Chills, fever and urinary frequency. Four attacks in two months.

Excretion urography: Right kidney appeared normal. Left kidney is enlarged with marked distention of pelvis and ureter. The urinary bladder is contracted with a left sided diverticulum. Distention of left renal tract due to obstruction from infiltrating disease of the bladder wall.

Comment: Retrograde exploration was impossible in this patient but if possible it would have been highly undesirable.

Case 4. M., aged 57 years. "Kidney stone" symptoms for twenty years. Excretion urography: Right side, at brim of bony pelvis was a ureteral calculus. No function in right kidney. Left side: normal appearing kidney and ureter.

Excretion urography (4 days later): Right side. Calyces markedly dilated, minor calyces clubbed with a dilatation of ureter as far as calculus, showing function. Left side: Normal appearing kidney and ureter.

Comment: Excretion urography demonstrated a unilateral suppression of urine better than any other method.

Case 5. F., aged 23 years. Pain in right side with tenderness about one year. An attempt to pass a catheter into right ureter failed because of a large calculus producing an obstruction a short distance from the orifice. It was impossible to collect a sample of urine for examination.

Excretion urography: Right side: There is a large kidney shadow, larger than on the opposite side. Within this are four circular areas of dentistry probably due to a distention of pelvis, major and minor calyces. Left side: Normal kidney and ureter.

Comment: Excretion urography was the only method by which the condition and function of the right kidney could be learned.

Case 6. M., aged 46 years. Sharp pain in left side for two days.

Excretion urography: Right side negative. Left side: Enlarged kidney outline. No evidence of function. Ureteral calculus under tip of the left lateral process of the second lumbar vertebrae. Excretion urography four days later with same result. Calculus removed two years and eight months later.

Excretion urography (5 months after removal of stone): Right side negative. Left side: Kidney shadow has decreased almost to normal. Pelvis and calyces are fairly normal in appearance. Function good.

Comment: This shows how well excretion urography can check the return of function after removal of calculus.

Case 7. M., aged 56 years. Diagnosis of uremic coma and bronchopneumonia. Patient showed evidence of kidney disease and so was examined by excretion urography on leaving the hospital.

Excretion urography: Bilateral enlarged kidneys. Elongated valyces with outlines typical of polycystic disease. Renal function on both sides less than normal.

Comment: Excretion urography is a safe and as accurate as any method in diagnosing this condition.

Case 8. M., aged 78 years. Pain and burning right side of abdomen. Abdomen showed herpes zoster. In left loin there is a mass the size of a small grape fruit.

Excretion urography: Right side: Fairly normal kidney and ureter. Left side: Fairly normal kidney and ureter. Large oval mass overlying lower pole. Distinct outline of kidney can be seen through this.

Comment: Excretion urography because it makes the entire kidney denser enables us to distinguish it from surrounding structures. Without the intravenous method we would never have been able to detect the difference between the tumor mass and kidney shadow. Excretion urography is thus a valuable help in differentiating obscure abdominal tumors.

Case 9. F., aged 48 years. Complained of indefinite renal trouble left side. Retrograde injection of left kidney showed a small, highly placed deformed pelvis. The possibility of tumor was considered.

Excretion urography: Double renal pelvis and ureters both sides.

Comment: Excretion urography is proven of value in this patient as the best method of examination in any vague renal disturbance which, as in this case, was proven to be a congenital anomaly.

## DISCUSSION

George M. Landau (Chicago): I wish I could be so enthusiastic and so sure about the diagnostic value of excretion urography. I believe it makes very little difference when a stone is demonstrable in the kidney as to the degree of visualization of the calyces since the insufficient filling can be attributed to the kidney stone and the resulting kidney disfunction, however where insufficient filling of the calyces exists and where stone is not demonstrable, how may one differentiate between an invisible stone or tumor since both are capable of producing disfunction?

My first embarrassment in this connection occurred some years ago where the insufficient filling of the cal-

yces led to a diagnosis of hypernephroma because of the typical spider shaped deformity of the calyces. On retrograde pyelography a stone in the pelvic ureteral junction was found and I have made it a practice since when insufficient filling of the calyces exists without definite evidence of stone to check that kidney by the retrograde method. Failure to visualize the kidney is due to kidney disfunction, but how unless retrograde is resorted to in such cases are we to determine whether the disfunction is due to high blood pressure, pyelitis or beginning anuria since they are some of the probable causes of kidney disfunction? In other words complete absence or partial visualization of the kidney cannot be attributed to stone or tumor mass alone and it has been my experience that on retrograde pyelography in many such cases of poorly visualized calyces by the intravenous method a normal pyelogram and uretrogram were found.

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## HYPERTHYROIDISM MASKED AS ESSENTIAL HYPERTENSION

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The association of hyperthyroidism and hypertension has been reported in the medical literature; nevertheless, this association is not generally appreciated. Although hyperthyroidism is easily recognized in a patient who presents clear cut symptoms; yet, when the hyperthyroid picture is masked by hypertension or other cardiovascular disease, its recognition may be difficult. In such cases, a high basal metabolic rate (B.M.R.) is often erroneously explained on the basis of cardiac failure or hypertension. The cases reported in this paper are of interest not only because they simulated hypertension, but also because their presenting symptoms were so unusual. In the majority of these cases, the diagnosis of hyperthyroidism was overlooked for some time. It is always well to bear in mind the possibility of hyperthyroidism in unexplained cardiac symptoms and in hypertension, especially if the patient be a female. The following points may be of help in diagnosis:

The early complaints may be referable to the heart, vascular, or nervous systems, or even the gastrointestinal tract; in not a few, the outstanding finding may be high blood pressure. Emotional instability is evidenced by nervousness, restlessness, worry and a highstrung feeling. Pain associated with numbness in the extremities, particularly in the hands and fingers, is a



common complaint. Pigmentation is common; it is usually brown or salmon color and is more pronounced on the exposed parts of the body. "Weakness of the extremities, especially in the quadriceps is a valuable sign. A feeling of sustained warmth in the absence of fever is very suggestive of hyperthyroidism. These signs together with weight loss in spite of a good appetite are almost diagnostic."<sup>1</sup> Diarrhea, nausea and vomiting, and a "nervous or capricious" stomach have been reported and may draw attention to the gastrointestinal tract.

On examination, the heart action is found to be rapid and forceful and does not subside on rest. The apex beat is sudden and forceful and is best elicited by palpating with the edge of the hand.<sup>2</sup> Systolic shock is frequent; and in about 30%, a thrill is felt.<sup>3</sup> Various authorities describe the first sound at the apex as short, abrupt, loud and roughened. A systolic murmur is commonly heard over the whole precordia. A pulsating abdominal aorta and Corrigan pulse are frequently observed, and the entire impression is one of forceful action on the part of the cardiovascular system.

Chest films often give valuable information. The heart may be shaped like a ham, and there is usually undue prominence of the pulmonary arc.<sup>4</sup> The left auricle is not enlarged which serves to differentiate this condition from that of mitral stenosis.

The electrocardiogram is usually normal. In the cases with damaged hearts left ventricular preponderance is seen in about 20% and right ventricular preponderance in a little over half that number. The T wave is high and may be inverted in leads one and two. Auricular fibrillation is seen in about 20%.<sup>5</sup>

In the examination of the thyroid gland, palpation should be done standing behind the patient who should also be standing. In this way more of the gland may be palpated because there is a tendency for it to rise from under the sternum. Even though nothing is palpable in the neck, x-ray films should be made in suspicious cases. Lateral views are particularly helpful; often the gland is visible behind the trachea.

"Other symptoms are: tremor, flushing of the face, moist skin, light brown patches—most often seen at the base of neck and shoulders—

fidginess, enlarged cervical lymph nodes, circumscribed edemas, insomnia, hyperglycemia, lowered protein assimilation and polyuria with increased calcium and phosphorus and decreased chlorine excretion. There is mild anemia, and the lymphocytes and large mononuclear cells are increased. There is also impotence in the male and decreased fertility in the female."<sup>6, 7</sup>

The following cases are representative of the group:

Case 1: This case was seen on the service of Dr. Leon Bloch of the Michael Reese Hospital. He has kindly consented to its use in this paper. A man 57 years of age had been suffering from gastrointestinal symptoms for 12 years; he had remissions when he felt quite well. He complained of generalized abdominal pain, diarrhea alternating with constipation, vomiting and nervousness. Previous to this illness he had always been well.

Physical examination revealed a rather large man, who appeared prematurely aged. The skin of the face and neck was a muddy brownish color which was deeper brown around the eyelids. Closer observation revealed patches of a salmon pink color. The teeth were bad, and there was pronounced fetor. The sclerae were muddy and there was excessive watering of the eyes. The thyroid gland was not palpable. The heart was not enlarged, the pulse was 72 and there was a systolic murmur at the apex. The systolic blood pressure was 190 and the diastolic pressure 115 mm. of Hg. The abdomen was not tender, and no masses were felt. The stools showed no blood, ova, or parasites, and the urine was normal. A gastric analysis showed a total acidity of 10 and no free acid. The red blood cells numbered 4,800,000, and the white cells, 9,800. A differential count showed polymorphonuclear cells 68, lymphocytes 28, monocytes 4. X-ray examination of the colon, stomach, and duodenum revealed nothing abnormal except hypermotility of the stomach. The gall bladder showed good concentration of the dye, and no stones were seen. The B. M. R. was 31 plus. Because of the pigmentation, nervousness, and the elevated B. M. R., it was thought that his symptoms might be due to hyperthyroidism, and x-ray films of the neck and thorax were made. The report by Dr. Arens was as follows: "The heart is not enlarged. There is a dense shadow over the right sternoclavicular area with deviation and encroachment on the tracheal lumen in the thyroid area, which suggests an enlarged right thyroid lobe."

On the smooth diet of Alvarez, with tincture of belladonna, iodine and sedatives, this man's symptoms disappeared.

Case 2. A white woman aged 52 years, who had always been well was first seen in September, 1933. For eight years she had had menorrhagia. Three years ago she first noticed dyspnea and nocturia. For the past three months she had noticed tachycardia, nervousness, sweats, and a tightness and numbness in the fingers of



the left hand; white spots appeared on the fingers, and the hand was always cold. Her father had died at 79 with cerebral hemorrhage; her mother, at 76 with dropsy.

There was a uniform light brown pigmentation of the skin. The thyroid gland was not palpable, and there was no exophthalmos. The heart was not enlarged to percussion, and the rate was 120 and regular. The blood pressure ranged from 210 to 270 systolic and 125 to 160 diastolic. The liver was slightly enlarged, and there was some edema of the ankles. The urine: albumin 4 plus; sugar 2 plus. The blood: red cells, 3,900,000; white cells 10,200. The B. M. R. was 75 plus. The blood sugar was 375 mg. per 100 c. c. The non-protein nitrogen was 36 and the creatinine 1.1 mg. per 100 c. c. The carbon dioxide combining power was 62 volumes per cent.

Except for a drop in the pulse rate, there was very little benefit from digitalis. Roentgen irradiations to the thyroid gland were begun. After two treatments, the metabolic rate had dropped to 52 plus; and after four treatments, the metabolic rate was 41 plus. There was also considerable symptomatic improvement, and she was able to do more work than previously. There was no very appreciable drop in the blood pressure. Her improvement was only temporary; therefore, it was decided to try physostigmine salicylate as advocated by Bram. There was again symptomatic improvement, but the blood pressure remained about the same.

In April, 1934, her vision which previously had been good, began to fail. An examination of the eye grounds revealed a fine black haze around the margins of the discs and moderate to deep constriction of the veins; there were no hemorrhages nor exudates.

When last seen, June, 1935, this patient was getting along fairly well.

**Comment:** This patient had diabetes which was controlled by diet, but this alone would not explain all of her symptoms. The tachycardia, nervousness, sweats, pigmentation, and the elevated B. M. R. are best explained by hyperthyroidism; and, in addition, hyperglycemia is not uncommon in hyperthyroidism.<sup>6</sup>

It is claimed that cardiac failure may determine an increased heat production; but if it were so in this case, we should certainly expect more evidence to incriminate the heart than we have here. There was no evidence of valvular disease and no cardiac irregularity; however, there was dyspnea and edema of the ankles; but evidence of decompensation was lacking. The response to digitalis was not convincing, and the dyspnea was not relieved even after a rest of one week in bed. Upon closer observation it was found that the dyspnea was more of an hyperpnea, present also at rest, the sort of breathing that has been observed with hyper-

thyroidism.<sup>6, 8</sup> Furthermore, in patients with congestive heart failure in other forms of heart disease, the B. M. R. is rarely over 25 plus.<sup>5</sup> Mundy says "it is probable that the increased activity of the muscles of inspiration results in greater oxygen consumption, and the heart itself plays no part in the altered metabolism."<sup>5, 9</sup>

**Case 5:** A woman 30 years of age complained of loss in weight, swelling of the ankles and abdomen, shortness of breath, rapid pulse and nervousness. She had an illness several years ago which was diagnosed hyperthyroidism. There was no history of rheumatism or chorea. Examination revealed an exophthalmos and an enlarged thyroid gland containing a nodule. The heart was enlarged to percussion and the typical signs of cardiac failure were present. The pulse rate was 116 and the blood pressure was 238 systolic and 116 diastolic. The B. M. R. was 54 plus. The blood urea and creatinine were normal as was also the urine.

**Comment:** In this case the cardiac symptoms were so overwhelming that at first the diagnosis of hypertensive heart disease with cardiac failure was made. It was only after the B. M. R. was done that attention was drawn to the other symptoms of hyperthyroidism, namely; the rapid pulse, nervousness, enlarged thyroid gland and the exophthalmos.

In this group of 12 cases, there were 10 females and 2 males. In all 12, the systolic pressure was above 150 mm. of Hg.; the diastolic pressure was 90 or above in eleven; and in the remaining case, there was aortic insufficiency. Subtotal thyroidectomy had been done in four cases, but there was very little drop in blood pressure after the operation. One of the patients operated on died. Of the eight not operated on, two are known to be dead. Renal damage sufficient to account for the hypertension was present in only one instance; and in this case, the renal damage may have been the result rather than the cause of the hypertension.

That the systolic blood pressure is elevated in hyperthyroidism very few will dispute; however, the oft repeated statement that in hyperthyroidism the diastolic blood pressure is low or unaltered is not confirmed by the evidence herein given nor by a large number of the cases presented in the discussion which follows: rather should we conclude from this evidence that the diastolic pressure may also be elevated.

**Discussion.** There is plenty of evidence that high blood pressure is a common accompaniment

of hyperthyroidism. Dameshek<sup>10</sup> gave an excellent review of the subject in 1924; he reported 141 cases of hyperthyroidism and presented evidence to show that the blood pressure was elevated in the group with signs of cardiac damage. Hurxthal<sup>11</sup> reported 458 cases of hyperthyroidism and found that 26.8% had a systolic blood pressure above 150 mm. of Hg. In 100 cases of severe exophthalmic goiter, 42% had a systolic blood pressure over 150 mm. of Hg.; and in 54 cases of adenomatous goiter with hyperthyroidism, this same figure was 62%. Rosenblum and Levene<sup>12</sup> found 23 hypertensive cases among 42 patients with hyperthyroidism. Parkinson and Crookson<sup>4</sup> made a study of 130 cases of thyrotoxicosis; blood pressure readings were given in 88. In 45 or 51.1% the systolic blood pressure was at least 150 mm. of Hg. In 35 or about 40% the diastolic blood pressure was 90 mm. of Hg. or more. Parkinson and Hoyle<sup>13</sup> cite 100 cases of hyperthyroidism all of which had a systolic blood pressure above 160 mm. of Hg., and 89 of these had a diastolic pressure of 90 mm. of Hg. or more.

In order to further estimate the occurrence of hypertension in hyperthyroidism, I have grouped together a number of cases appearing in the literature under the caption of latent or masked hyperthyroidism or a similar title. There were 60 such cases representing the following investigators:<sup>7, 14-23</sup> The results were as follows: Systolic blood pressure readings were recorded in 56 and diastolic readings in 55. There were 28 cases of systolic hypertension, or 50%, and 22 cases of diastolic hypertension, or 40%.

How do these figures compare with the incidence of hypertension in the general population? Bell and Clawson<sup>24</sup> used as a basis for hypertension all cases of cardiac hypertrophy at autopsy that could not be explained by some other form of cardiac disease. They found that hypertension was present in 12% of all persons over 40 years of age. Sutton<sup>25</sup> quotes Alvarez who found, in a study of several thousand persons, a systolic blood pressure of 140 or over in 20.7% of males and in 3.7% of females. This is an average of 12.5%. It seems clear therefore, that the incidence of hypertension is two or three times as frequent in hyperthyroidism as it is in the general population.

It would probably be stretching a point to

say that the cardiac hypertrophy so frequently seen in hyperthyroidism might be the result of hypertension; yet, one cannot but note the parallelism that exists between the high incidence of hypertension and the high incidence of cardiac hypertrophy in hyperthyroidism. Andrus and McEachern<sup>26</sup> quote McEachern and Rake who found 16 cases of moderate hypertrophy among 27 cases of hyperthyroidism. Parkinson and Crookson<sup>4</sup> in an examination of 43 thyrotoxic hearts at autopsy found hypertrophy in 50%. Collier<sup>27</sup> in an examination of 300 cases of adenomatous goiter found cardiac hypertrophy in 20 to 40%.

Other investigators have referred to the occurrence of hypertension in hyperthyroidism, most of whom believe that this association is more than mere coincidence:<sup>2, 13, 23, 34</sup> The occurrence of an elevated B.M.R. in hypertension also has been stressed:<sup>22, 35, 37</sup>

A thyroid element in hypertension was recognized by many workers at different times in various parts of the world. Barach,<sup>38</sup> Manna-berg,<sup>39</sup> Foster,<sup>40</sup> Gallavardin,<sup>41</sup> Riesman,<sup>34</sup> Plummer,<sup>42</sup> have all referred to it. Barach referred to a tonsil-thyroid syndrome in females that culminated in hypertension after the menopause. Plummer found that 27% of patients with non-hyperplastic goiters who were 40 years or over showed hypertension; there was no evidence of thyrotoxicosis. He concluded that this could not be explained by coincidence. Riesman mentioned a "non-goitrous thyrotoxic hypertension" with symptoms closely resembling those of a thyrotoxicosis.

Some writers go still further and say that clinical hyperthyroidism may be the precursor of hypertension. Bach and Bourne<sup>32</sup> cite several patients with hyperthyroidism who developed high blood pressure in subsequent years. The authors make the following statement: "That the raised blood pressure was in each case due to hyperthyroidism is a reasonable deduction." Parkinson and Hoyle<sup>13</sup> make a similar statement: "Thyroid toxemia will some day be recognized as one of the sources of essential hypertension and not merely one of its concomitants." With the last statement, I am not in full accord because at the present time there is evidence that there may be some other factor behind the symptoms of thyroid activity; and that all the



symptoms of hyperthyroidism are not produced directly by a "thyroid toxemia." It is possible that a disturbance of the sympathetic nervous system may play a role in the production of the hyperthyroidism and also of the hypertension.

6, 43, 45

### CONCLUSIONS

Twelve cases of hyperthyroidism are cited; all had systolic hypertension, and eleven had diastolic hypertension.

Evidence is presented to show that the diastolic pressure in hyperthyroidism is elevated as well as the systolic.

Evidence is presented to show that the incidence of hypertension in hyperthyroidism is much higher than in the general population. The possibility that hyperthyroidism may be an etiologic factor in hypertension should be considered, or that both conditions are manifestations of some other underlying disturbance.

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## TREATMENT OF HEMORRHAGE IN HEMOPHILIACS AND NON-HEMOPHILIACS WITH THEELIN IN OIL

### PRELIMINARY REPORT

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Hemorrhage, due to some abnormal condition in the blood in a true hemophiliac and non-hemophiliac, has long been a dread of the practitioner. The true cause of hemorrhage, I feel, is still unknown, but I believe that it is firmly

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established that the hemophiliac type occurs in the male sex exclusively and runs in a family tree, transmitted from generation to generation, sometimes even omitting the transmission in a generation. Various drugs and remedies for control of hemorrhages in hemophiliacs and non-hemophiliacs have been tried with only moderate effectiveness. If I may mention a few of the most common:

*Horse Serum.* A preparation often used because of its known influence on hemorrhage by increasing the coagulability of the blood thereby reducing the hemorrhage to a general oozing. As we all know, the use of this product causes a severe reaction in the patient, so that its use should be guarded with the utmost precaution.

*Adrenalin.* Intramuscularly and locally has proven of little or no value, except for cardiac conditions resulting from the hemorrhage.

*Transfusion.* Has proven of slight value except for anemia resulting from the hemorrhage. I found that it is followed by extreme shock in hemophiliacs and therefore should be used with great consideration and only in extreme cases of secondary anemia.

*Calcium* and other coagulants by mouth have their use, but due to the slowness in effectiveness orally, they are of little value here.

*Pressure* is one of value in some cases, if one is able to use it, but not curative.

With the idea that hemophilia occurs only in the male, I was of the opinion that the ovaries in the female were a factor in the absence of such abnormal condition in the blood in that sex, as was recalled to my attention by an article written in 1933 by Dr. Carrol Burch of Chicago. With this theory in mind I began treating hemophiliacs who came under my care with various ovarian substance such as corpus luteum, whole ovary, etc., both orally and intramuscularly, at first with slight improvement until I, by chance, used the extract sold under the trade name "Theelin in oil" (Parke Davis & Co.). With the intramuscular use of one ampoule, 1000 International units per cc, of theelin in oil every two to three hours, great improvement, if not complete cessation, was apparent after the injection of three to four ampoules. The use of theelin, in my hands, has proven of exceptional value, but must be given as often as every two hours in one ampoule doses, unless in extreme conditions when I advise two ampoules for the first dose.

Several patients have complained of severe stinging at the site of injection, which I relieved by the use of a small amount of one to two per cent. novocaine. In using the latter, I drew the theelin into the syringe and then four or five mm. of novocaine, so that on injecting, the amount of novocaine was injected first and after four or five seconds the rest of the syringe, with absolutely no pain to the patient, who even asked if the hypodermic had been given. To verify my enthusiasm for the use of this drug in the treatment of hemorrhage in a hemophiliac and non-hemophiliac, I cite several cases.

Case 1. White, male, a true bleeder with a family tree, 26 years of age, admitted to the hospital January 23, 1933, for a septum operation. Before admission to the hospital the entire blood picture was checked and rechecked over a period of several weeks by our local pathologist, who found as usual all tests normal and said his condition was favorable for operation. The operation was performed on January 23, 1933, A. M., with a normal amount of loss of blood during the operation. About four hours post-operative severe nasal hemorrhages occurred, accompanied by a marked increase of pulse to 140. An attempt was made to control this by the use of ephedrine and thromoplastin and various other types of nasal packs, which required changing every four to ten minutes for the next forty-eight hours. The packs were kept in place by the use of nasal splints. On the third day of the hemorrhage, a transfusion was performed with little noticeable effect on the hemorrhage, but caused extreme shock to the patient. On January 28, 1933, I began using whole ovary and corpus luteum, by mouth and hypodermically, with a very slight improvement of the bleeding. On January 30, 1933, at 6 P. M., I began the intramuscular injection of theelin every three hours, which controlled the hemorrhage, so that on the morning of January 31, 1933, the nasal packs were removed and only the nasal splints left in. Recovery was uneventful from this date, the patient leaving the hospital on February 4, 1933. The blood picture of the patient on admission was, R.B.C., 5,380,000; W.B.C., 12,050, 85%; on February 1, 1933, R.B.C., 4,050,000; W.B.C., 10,200, 60%.

Case 2. White male, 14 years of age, admitted to the hospital December 19, 1934, for T. A. operation following an attack of acute quinsy of two days' duration. The operation was performed on this date and was uneventful until about four to five hours post-operative, when the patient had a severe hemorrhage from the throat. Attempts were made to control it by packs, pressure, ligatures and the use of coagulants, but to no avail. On December 20, 1934, A. M., I used theelin, one ampoule every two hours, and at twelve noon of the same day the bleeding had completely stopped. The patient left the hospital the same day. If I may use the words of the attending specialist, "It did everything I could ask it to do."

Case 3. White, male, 54 years of age, admitted to the hospital January 22, 1935, 11 P. M., with a severe compound comminuted fracture of the lower third of the right tibia, accompanied by a severe hemorrhage, which was general in character. The leg was treated, and all bleeders were ligated, traction applied by the use of a Steiman pin in os calcis and large dressings and pressure applied. Bleeding continued until about 9 A. M., when the patient's wife informed me that he was a known bleeder, so diagnosed at one of our leading clinics. Immediately upon this knowledge, I started my treatment with theelin, 1 cc. ampoule every two hours and in four hours bleeding had completely ceased and remained same to this date.

Case 4. White, male, 19 years of age, operated on for deviated septum followed immediately by a severe hemorrhage and shock. The operator was partly able to control this by packs and various oral hemostatic drugs, but moderate hemorrhage continued even to the point that packs were forced out of the nose and had to be replaced. For a period of two weeks postoperative packs were changed at various times and always followed by extreme hemorrhage, and by this time was accompanied by severe secondary anemia. After two weeks of repeated hemorrhages and continued bleeding, I was called to attend the patient and administered, in the first twelve hours, six ampoules of theelin, which was followed by complete cessation of the bleeding, even with removal of the packs. The next day the patient received two more ampoules, and his condition remained uneventful for the next five days, when the operator cleaned out the nose by swabbing and irrigation, and on the following morning upon awakening a large crust came out of the nose, followed by five or six drops of blood, at which time he received one more ampoule and was allowed to get up, even to going down stairs for the first time. No signs of even a drop of blood were noticed from that date. This small amount of blood on removal of the crust in my mind would be a normal amount from such a condition. I feel that it more emphatically impresses the value and control obtained by the use of theelin in oil.

Case 5. White, female, 26 years of age, March 20, 1935, who had an emergency operation for torsion of a right ovarian cyst. At operation bilateral dermoid cysts were found, and a bilateral oophorectomy was done. At operation all bleeding was completely stopped except for a general subcutaneous ooze, which continued and necessitated changing of dressing in four hours, at which time one ampoule was given every two hours for four doses, which completely checked the bleeding to this date. I feel that this type of bilateral disease of the ovaries affects their secretion, so that the blood loses the benefit of their secretion, thereby causing the same condition, as I feel is the cause of hemophilia.

Case 6. A true hemophiliac was operated on for necrosis of tibia and non-union, at which time necrotic tissue was removed and bone chips from the other leg were used to fill in gap in non-united leg. Previous to the operation one ampoule of theelin was given three times a day for two days, and at the time of operation

bleeding seemed to be of about normal amount. Postoperative, two ampoules were given three hours apart, and bleeding has been completely controlled since then, a period of three weeks.

Case 7. White, male, 29 years of age, had a bilateral turbinectomy on April 30, 1935, which was accompanied by a severe hemorrhage, uncontrollable by packs and oral administration of hemostatics. Four hours, postoperative, I saw the case and immediately gave him two ampoules of theelin, repeating the same dose three hours later, at which time bleeding had stopped. Three hours later one ampoule was given, and ten hours later one more ampoule was given to fortify the treatment. Two hours after the last ampoule, the packs were removed and nose swabbed out without a trace of blood. This patient is a severe asthmatic, but received no reaction from the use of this drug, which proves that it can be used also on asthmatic patients.

Case 8. White, female, 17 years of age, operated on about one year ago for an incomplete abortion and removal of large bilateral cysts of ovaries. At that time recovery was uneventful and for eight months menses did not appear. About five weeks ago menses started with a severe hemorrhage and patient continued to have an excessively heavy flow. For four weeks various types of hemostatic drugs were used for the contraction of the uterus with no relief. I gave the patient one ampoule of theelin every four hours for six doses, which was followed by complete cessation of menses. Since this time menses have been normal in every respect, patient having returned to school and general exercises.

From the above instructive cases I hope I have been able to demonstrate the marvelous results I have obtained from this ovarian extract and also further hope to prove that the ovaries in the female are the restrainer of the hemophiliac conditions, but the destruction or removal of same may allow hemophilia to occur. I am sorry that I am unable to state the reaction that occurs in increasing the coagulability of blood with the use of theelin in oil, 1000 International units per cc; but feel that it must certainly increase the prothrombin, or at least activate it in the blood. I hope to report in the future in more detail as to use and action of this follicular substance which has proven itself of absolute value in the treatment of hemophilia of various types.

Safety Building.

#### DISCUSSION

Dr. Don C. Sutton, Chicago: I am extremely pleased to hear this paper. I spoke yesterday of the fact that clinical investigation can be done as well outside the larger medical centers as within them. This paper is in line with that thought.

Dr. E. B. De Silva, Rock Island (closing): There are two types of theelin, and the theelin in aqueous solution has a different result.



## THE COLON AS A SOURCE OF ABDOMINAL PAIN

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A careful survey of the material from any large medical or gastrointestinal clinic will show that far more than half of all the instances of abdominal pain which come under observation are due to functional or anatomical disorders of the bowel. It is interesting, therefore, to consider the mechanisms and causes of this most common of all sources of abdominal pain.

There are three mechanisms for the production of pain from the colon:

A. Increase in tension of the bowel or in pressure within the lumen of the bowel:

I. Actual increase in volume distention, e. g., gaseous distension, enema, etc.

II. Pressure increase due to muscular contraction.

a. Increase in peristalsis and tonus contraction.

b. Obstructing mechanisms.

1. Organic narrowings.

(a) Neoplasm.

(b) Cicatrizing stenosis arising from healing of ulcers and other inflammatory lesions of the bowel wall.

(c) Adhesive bands.

(d) Extrinsic pressure, e. g., Neoplasms, glands, etc.

2. Spasm.

(a) Diffuse—transitory.

(b) Localized—due to inflammatory lesion, e. g., diverticulitis.

B. Inflammatory (peritoneal).

C. Neoplastic — (Relatively unimportant since not usually present. The pain of neoplasm is usually obstructive).

The mechanism responsible for the production of peristaltic pain is the one which has been so thoroughly studied by the balloon method evolved by Carlson and used by Alvarez and other observers. It is so closely related to the physiologic mechanism of bowel contraction that it requires relatively little alteration in anatomical or physiological conditions to bring it about. It is im-

possible to dissociate the effects of increased tension of the bowel wall and increased pressure within the bowel because a distension of the bowel usually stimulates increased contraction. A slight increase in tension may register only as a feeling of fullness or distension. A somewhat greater tension results in actual pain which may vary from a dull ache to terrifically severe, cramp-like colic of our green apple experiences of childhood. This pain not infrequently becomes so severe as to cause nausea, vomiting or actual fainting. The increase in pressure and resultant distress may be continually localized to the same bowel segment in the case of a localized cause or may be such as to give rise to increase in pressure at one time in one segment and again in another elsewhere and at still other times generalized throughout the entire abdomen. The pain may register in the exact region where the increase in pressure is occurring, as we have been able to observe countless times during the course of fluoroscopic examinations of the colon, and it may be referred elsewhere at the same time or it may less commonly be felt only in the location of reference. The most common reference is to the back but occasionally the pain may be referred up over the lower part of the chest or down the front of the thighs. Occasionally it is referred to the pelvis or perineum.

The increased peristaltic activity which produces pain usually results also in an increased rate of movement of material through the colon, thus causing a decrease in the time available for absorption of water from the bowel content and a corresponding increase in fluidity of the stools—that is, diarrhea. We find, therefore, a frequent co-relation of pain and diarrhea in the symptomatology of bowel disorders. Exceptionally it may happen that intense or persistent spasm of colon segments may interfere with forward movement of the bowel content, resulting in pain associated with constipation, as seen for example in lead colic.

The most important etiologic factors producing this pressure type of distress will include:

1. Localized primary disease of the colon such as carcinoma, polyp, tuberculosis, etc. These lesions may cause merely a compensatory increase in the pressure produced by peristaltic contraction or may in addition, act as irritants to cause



a reflex increase in peristaltic activity, which may be either localized or general.

2. Extrinsic disease involving the bowel to produce obstruction, e. g., hypernephroma; pancreatic cyst; masses of glands due to Hodgkin's disease, tuberculosis or carcinoma involvement, or any of a variety of conditions which may impinge upon the colon in a region which does not allow its escape and result, therefore, in obstruction.

3. Generalized irritative and inflammatory processes. These are by far the most common cause of colon pain. Included in this category are all of the heterogeneous groups of cases which fall within the general diagnosis of "colitis" and which have furnished the material for so much discussion regarding classification and nomenclature.<sup>1, 2</sup> In general the group may be divided into

- a. Simple irritation.
- b. Inflammatory:
  - 1. Non-ulcerative.
  - 2. Ulcerative.
    - (a) Nonspecific ulcerative colitis.
    - (b) Amebic dysentery.
    - (c) Bacillary dysenteries.
    - (d) Tuberculosis, etc.

The dividing line between the irritative and the actually inflammatory cannot always be sharply drawn and that which at one time seems to be merely irritative may subsequently prove to be actually inflammatory. The causes of the simple irritative and non-ulcerative inflammatory types may be grouped as follows:

A. Dietetic causes:

- 1. Excessive amounts of the laxative components of the diet.
- 2. Abnormal food irritants.
  - a. Abnormal food combinations.
  - b. Chemical irritants resulting from food decomposition or fermentation.

B. Drugs. The prevalent use and abuse of laxatives by the lay public, promoted by the extensive advertising campaigns of the manufacturers, have provided the source for a tremendous amount of peristaltic distress. Enemas of all kinds tend likewise to irritate the colon and the addition of soap, magnesium sulphate, glycerine

and various other chemical substances to enhance their effectiveness in emptying the colon, serves also to increase their effectiveness as irritants.

C. Chemical irritants produced within the body. Included in this group are bacterial toxins—as for example, those responsible for the diarrhea observed frequently in the early stages of pneumonia and various other infectious diseases; those less clearly defined chemical products resulting from the faulty metabolism occurring in the tissues at abnormally low temperatures, as a result of chilling the body; metabolic products reaching the bowel via the blood stream because of serious metabolic or excretory derangement elsewhere, e. g., in hyperthyroidism and in uremia. The latter furnishes an excellent example of the way in which a single cause may, under varying conditions, result in simple irritative or actual non-ulcerative inflammatory change and, in its more severe degrees, extensive ulceration of the colon. It may thus serve to emphasize the indefinite borderline between these groups.

D. Nervous factors. The contraction of the colon in response to stimulus acts as a conditioned reflex. The factors of nervous and mental stress, extremes of emotional state such as anxiety or fear, anger, etc., tend to modify the degree of peristaltic response to stimulus and in susceptible individuals, to result in pain and diarrhea.

The nature of the peristaltic response is such that it may readily be stimulated under a variety of conditions with corresponding variations or additions to the general symptom picture. The taking of cold or excessively hot foods or liquids into the stomach may provide a thermal stimulus and result in pain occurring immediately after the ingestion of food or liquid. Lesser degrees of this type of response may be experienced by the patient only as a feeling of fullness and pressure so that he complains that he feels filled up as soon as he starts to eat, decreases his food intake correspondingly and loses in weight. In other individuals the ingestion of warm foods or liquids may have the effect of converting the stomach into a hot water bottle, its close proximity to the colon resulting in a soothing thermal effect. The patient may thus report relief of pain by food taking, in this manner simulating

1. Jordan Sara M.: A Classification of Diseases Called Colitis; *Surgical Clinics of North America*, 11: 403-405, 1931.

2. Barger, J. Arnold: *Differential Diagnosis and Treatment of the Types of Colitis*; *W. Va. Med. Jour.*, 29: 20, 1933.

the food relief of the pain of peptic ulcer. The mechanical stimulus from jolting or jarring may cause the pain to be initiated or aggravated by exercise. The conditions of life from day to day are such that it is frequently impossible to dissociate the effect of exertion from that of fatigue, anxiety and other emotions because so many factors act simultaneously.

*Diagnosis.* In the recognition of this type of pain a carefully elicited history is of great importance. The majority of patients have learned by daily physiological experience to recognize the sensations which are associated with increased peristaltic activity preceding bowel movement and the question, "Is this pain associated with a desire for a bowel movement?" should regularly be asked concerning any abdominal pain of uncertain origin. Especially when the bowel contractions cause an increase in pressure in the sigmoid and rectal segments, the patient will definitely associate his discomfort with the sensation of desire to defecate. In many instances the use of the bowel distension enema or so-called "test enema" will help to identify the source of the patient's pain. For this purpose the patient is given a large enema of plain water, introducing a small amount at a time until the bowel is distended and the patient's original distress is thereby aggravated or modified or a new and different distress has been produced by the enema. The patient should be carefully instructed before the enema is started that its purpose is not merely to empty the bowel but that the enema is given as a test to enable him to compare a known bowel distension distress, thus artificially produced, with the pain he was already experiencing. Similar observations may at times be obtained with the barium enema used in the course of the roentgenologic examination. The contraindications to the use of this method will manifestly include such acute inflammatory processes as appendicitis, diverticulitis and most of the ulcerative bowel lesions.

In the diagnosis of the obstructive bowel lesions, the neoplasms, the ulcerative lesions, and the non-ulcerative inflammatory processes, the painstaking examination of feces by chemical, microscopic and bacteriologic methods are indispensable as is also a thorough roentgenologic and proctoscopic examination. The limitation of time upon this paper precludes a detailed discus-

sion of laboratory findings but there are a few points worthy of brief emphasis. The presence of occult blood in the stools on a meat free diet is highly significant and negative reports are reassuring in helping to exclude the presence of carcinoma, polyp and ulcerative lesions. It is especially important, however, to remember that tuberculous lesions of the bowel show very little tendency to bleed. Even with very extensive ulcerative tuberculosis of the ileum and colon, the examination of the stools for occult blood may be persistently negative. Fortunately, from the standpoint of diagnosis, practically all of the other ulcerative lesions of the colon and the neoplasms tend to show persistently positive tests for occult blood. Macroscopic blood in the stool occurs only when the bleeding lesion is low in the bowel or when there is an active diarrhea. Blood changes in color and disintegrates quickly when in contact with the bowel content and after a short time is no longer recognizable as gross blood though it will still give a positive benzidine reaction. The oozing of small amounts of blood from the surface of an ulcerating carcinoma causes macroscopic blood in the stools only when the tumor is in the rectum or sigmoid. The occurrence of pus in the stools as a macroscopic or microscopic finding, indicates the presence of an ulcerative lesion or the perforation of an abscess into the lumen of the bowel. As a rule, the processes which give rise to blood or pus in the stools will also produce sufficient anatomical alteration to produce characteristic roentgenologic changes. Proctoscopic or sigmoidoscopic examination will, in many instances, provide a direct visualization of the responsible lesion. In that group of patients who present a history of allergic manifestations or a history of pain or distress following certain individual articles of food the skin tests for protein sensitization may prove helpful. However, in testing a large series of patients our own experience has been that clearcut protein sensitization has proved of far less frequent occurrence than earlier publication would seem to indicate.

Because pain originating in the colon may occur at any time, in any part of the abdomen and of any severity, it may readily simulate practically any other type of abdominal pain and must be considered in the differential diagnosis of all cases of abdominal pain. The relief of pain by



the taking of warm food has frequently simulated the pain occurrence of peptic ulcer. The less severe attacks of appendicitis and gall bladder disease are very often simulated by the distress of a bowel colic. Even the lumbar pain of a renal colic may be reproduced by pain in the colon. The pains of lead colic may at times be very similar to those of gastric crises of tabes. Manifestly a careful physical examination will frequently furnish the necessary evidence for differentiation. Simple irritation of the colon is as a rule associated with little or no increase in muscle resistance and only the more acute inflammatory lesions such as diverticulitis, pericolic abscess, etc., are likely to show definitely localized muscle defense reaction. The latter will almost always present abnormalities of roentgenologic findings, blood, pus or mucus in the stools, etc. Some measure of the irritability of the colon can be obtained by palpating the colon in the right and left lower quadrants, rolling it under the palpating fingers to determine the degree of spasticity, etc. The present tendency of lay patients to self medication with cathartics for any kind of abdominal pain frequently results in the development of a cathartic colitis in an individual who already has a localized organic lesion of the bowel (e. g., carcinoma). This combination of a generalized and a localized bowel condition produces a diagnostic problem which is frequently quite difficult.

*Treatment.* The limitation of the time allotted to this paper does not permit a full discussion of the treatment of the organic and the functional disorders of the colon. Since the treatment of the dysenteries and the ulcerative bowel lesions has received so much attention in recent medical literature, it seems worth while rather to consider the milder inflammatory and simple irritative bowel conditions.

In the care of the commoner type of so-called "colitis" or irritable colon the problem is rather one of management and of education than of radical or aggressive treatment. Exogenous irritants of all kinds are to be excluded as far as possible. Since cathartics are among the chief offenders in this group, it is expedient that they be stopped and the patient taught the fundamentals of the normal dietetic management of the bowel. It is not sufficient for the physician to assume direction of the diet. This may be the

quickest way to regulate the bowel action by means of diet but if the patient has not been educated in the principles of diet management he is likely to revert to his laxatives as soon as he is no longer under direct supervision, and thus undo all that has been accomplished. A simple record of the quantity of vegetable and fruit used in the diet and the type of stool resulting has often proved helpful in the education of such patients. Because of the parallelism between degree of peristaltic activity the pain or distress resulting, and the water content of the stool, it is usually expedient to restrict the diet to include only that quantity of roughage which can be tolerated without producing loose stools. In doing so it is essential that the diet prescribed should provide an adequate caloric intake and adequate protein, mineral and vitamin intake. While this can usually be accomplished by diet alone it is sometimes necessary to add specific vitamin preparations. Those patients who have demonstrated allergic sensitivity to certain articles of food should exclude such foods.

There are many drugs which occasionally prove helpful but there is none which finds universal applicability. Perhaps belladonna and its derivatives and the bromides or other simple sedatives prove the most widely useful. The administration of calcium as suggested originally by Haskell and Canterow<sup>3</sup> with parathormone has proved valuable in lessening the degree of bowel irritability in obstinate cases of ulcerative colitis and is used less frequently in the non-ulcerative forms. External application of heat in various forms and, in some cases, the deeper heat produced by diathermy may add both to temporary palliative relief and more permanent progress. The neurogenic factor is one which has not been sufficiently appreciated. It is a common experience to see a patient follow a strict regime for weeks in order to control the manifestations of an irritable colon and then go on a vacation in the country for a month during which he can eat anything and do everything, only to find the old trouble recur when he returns to the city and the office grind. Frequently the anxiety of the patient over his own condition is sufficient to provide the neurogenic factor and result in a vicious circle. Reassurance plays an important part in the treatment of such patients but it is not suf-

3. Haskell and Canterow: Calcium and Parathyroid Therapy; *Am. J. Med. Sc.*, 181: 157, 1931.



ficient to merely say "This thing is not serious. You are going to be all right." It is necessary to devote sufficient time to the logical explanation of the patient's manifestations to give him some understanding of their mechanism. Much depends upon the judgment of the physician in estimating the intelligence of his patient in order to determine how far one may go into detail without confusing the patient and adding to his anxiety. Regulation of the patient's mode of life with prescribed rest periods, recreative exercise and limitation of periods of work will prove helpful in many cases. In others the result can best be obtained by the establishment of a program of short vacation trips at frequent intervals as contrasted with the more usual single vacation per year. Those peaks of emotional stress which can be anticipated or recognized can sometimes be offset by a tightening of the dietary regime at that time and an exacerbation of symptoms thereby prevented. Occasionally it will be found that the nervous stress responsible for the difficulty can only be removed by a social or occupational readjustment. The highly emotional man or woman with an irritable colon, readily influenced by neurogenic factors, should not attempt to hold a position in the "information bureau" at a railway station or the "complaint division" of a department store. Under present economic conditions, however, changes of occupation or social status are far easier to prescribe than to produce and some of the emotional stresses will perhaps require a study of ornithology in the attempt to differentiate between blue eagles and other blue birds.

#### X-RAYS IN THE DETECTION OF PATHOLOGY OF THE CERVIX, CORPUS UTERI AND OVIDUCTS.

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The diagnosis of pathological conditions of the pelvic genital organs, and the decision to institute one or another therapeutic measure has in the past been derived, for the most part, from a careful consideration of the history together with findings elicited by inspection and palpation. It is true that from time to time considerable aid has been contributed by research in the

fields of bacteriology and some other lines of laboratory investigation, but it was not until x-rays were introduced into this field of diagnosis that it became possible to eliminate much in the way of the speculative interpretation of indefinite findings. It appears at present that data can be developed by careful and complete x-ray examinations, which offers more precise aid than any or all other methods of investigation, probably not excepting laparotomy and surgical examination, in disclosing the true significance of doubtful pelvic findings. The detection of the presence of a distinct disease entity is very often not sufficient. We must be able to determine the presence of anatomical variations and abnormalities and to ascertain with reasonable certainty the presence of normal physiologic alterations to which these organs are subject, in order that the presence of true pathologic conditions can be differentiated. Finally, the plan for therapeutic management, the most suitable surgical procedure, the character of the irradiation, whether by radium, x-rays or both; in fact, the application of any form of treatment carries greater hope of success when the physician is armed with correct diagnostic data upon which to draw conclusions.

The importance of a thorough understanding of the history and the data developed in a preliminary physical examination of the pelvis is universally acknowledged. This examination should always include inspection of the vulva and the perineum, with bimanual vaginal and sometimes rectal examination, together with inspection of the cervix uteri and the use of the intra-uterine probe, as the case may require.

The roentgen examination consists essentially of two parts. First: The study of x-ray films made of the pelvic region together with fluorescent screen findings, which have been supplemented with bimanual palpation of the organs and sometimes the insertion of opaque instruments within the organs as the case may require. Second: The x-ray examination of the organs following the introduction of a contrast media within the viscera, or around the viscera, or both.

The technical difficulties encountered when introducing a contrast media into the pelvis, whose density is less than the pelvic viscera, or the introduction of a contrast media into the cavities of the pelvic viscera, whose density is greater than that of these organs, has been so perfected

that at the present time they constitute routine procedures in the practice of many radiologists and gynecologists.

Uterosalingography after the cavities in the pelvic genital organs have been filled with a contrast media, with or without pelvic pneumoperitoneum, in selected cases has been proven to be a safe procedure. Cases possessing contraindications are few, if any, when the proper care is exercised and a suitable technique has been mastered. Pregnancy, menstruation, malignancy, acute salpingitis and acute gonorrhea have been mentioned. In the course of our work, these examinations have been conducted in many patients who possessed at the time one or more of these conditions, with the exception of acute gonorrhea. It may appear bold, but I believe I can state that we have instituted this examination in all cases where diagnostic aid deduced by this method seemed essential, and we are not aware of a single case in which an undesirable complication arose as the result of the diagnostic procedure.

The credit for priority in uterosalingography must be given to Doctor Cary of Brooklyn, who in 1914 made the first x-ray examination of this character, after introducing colargol into the uterus and oviducts. Following the work of Cary, Beck's paste was introduced by Doctor Emil Beck and myself in the early 20's, and there were other workers using various kinds of contrast media in many of the medical clinics in the United States and Europe. These examinations, however, became a real clinical possibility, and their usefulness was definitely established in this country by Forestier of France, when he delivered lectures on this subject before many radiological bodies and medical clinics during the winter of 1925-26. Furthermore, the book published in English by Sicard and Forestier on "The Use of Lipiodol in Diagnosis and Treatment" has done much to popularize this work in the United States.

*The Cervix Uteri.* The frequency and the importance of diseases of the cervix uteri are not generally recognized. It appears that only a few gynecologists and radiologists give more than passing concern to these conditions in connection with their relation to the general health of the patient, or their significance as a premalignant lesion. The cervix is more frequently the seat of pathology in women who have born children,

but it must not be forgotten that it occurs in all classes, after puberty.

The cervical canal, demarcated at each end by the external and the internal os, possesses a very generous glandular system in its mucosa. The structures of the cervix are subject to violent trauma during the natural functions and very frequently the damage sustained remains without complete repair. The character of the lesions range from low grade endocervicitis to gland cyst formations with pocketing and other degenerative tendencies and finally granular hyperplasias, polyps, and adenomatous formations. The cervix should become a point for close vigilance in all women in order that a pathological lesion may be recognized early and eradicated.

Trachelography requires no technique, which cannot be very efficiently conducted in any regular radiological practice. A small canula which has been passed through a perforated rubber cone is introduced into the cervix through the external os. The rubber cone is pressed against the external os and held sufficiently firm to prevent the contrast media, which is introduced through the canula, from passing back into the vagina. Fluorescent screen observations and trachelography is done in such a way that all of the findings may be elicited and a permanent record established. While it is true that the cervical canal may be explored very successfully with a uterine probe while the cervix is under inspection through a vaginal speculum, the character and the extent of the filling defects in a trachelogram furnish more reliable data than can be secured in any other way.

*The Corpus Uteri.* Uterography becomes highly important because the conditions in the uterus which can be shown on a uterogram can scarcely be indicated by any other method. Moreover, conditions of very serious importance to the patient may be definitely located by this method, positive diagnoses secured, and the condition eradicated before the usual clinical symptoms and signs have developed. In other words, it is possible to diagnose and eradicate a disease from within the uterus, before it has become a clinical entity. The technique of introducing contrast media into the uterus for uterography requires considerable care and precision in order that all of the findings may be elicited. The quantity introduced, and the pressure used during the observations, the positions of the patient, the alter-



ation of the position of the uterus within the pelvis by palpation or traction during the observations, are some of the points which greatly aid in developing the proper data for diagnostic purposes. Uterograms must show the different surfaces of the contrast media while it is being held within the uterus. At the same time the larger and smaller filling defects are studied under the fluorescent screen, and the exact location, position, mobility and the contour of the cavity within the uterus are observed. A study of the relation of the contrast media with the shadows of the uterus itself, and their relation to other tissue densities within the pelvis, such as tumors or other organs, are almost always facilitated by palpation from the vagina or rectum.

When the filling defect in the uterogram denotes the presence of tumor growth, biopsy and microscopic examinations become almost imperative. For this purpose, standard surgical methods and the use of the curette have proven to be so dangerous that it becomes necessary to eliminate them from general practice. Biopsy can be performed by the use of a special instrument, devised for this purpose. It may be introduced into the uterus and directed by fluorescent screen observation to the point causing the filling defect. A specimen for microscopic examination can be obtained without incurring the dangers of a curettage. The biopsy specimen is secured within the instrument, and separated from the uterus by a proper electrical cutting current, the hemorrhage controlled by electricity, and if the tumor is malignant, the danger of creating metastasis has been minimized. The electrical current may be secured from any surgical current generator of standard make. Biopsy by this method, not only minimizes the hazards to the patient, but is far more reliable than a microscopic diagnosis, which depends upon the examination of bits of tissue selected from those removed in the surgical procedure of curettage in the early cases. Tumors, causing small filling defects in the uterogram, may be submitted to biopsy in this manner, a positive diagnosis secured, the case be subjected to treatment, and the progress of regression following treatment by irradiation with radium and x-rays kept under observation, in a manner not possible by any other method. A study of a series of uterograms, covering an extended period following irradiation, gives a re-

liable check on the problem of when adequate treatment has been instituted.

*The Oviducts.* Salpingography requires practically the same technical procedure necessary in uterography. Bimanual vaginal and rectal palpation during fluorescent screen observations should be employed. The patulousness or stenosis of the oviducts at the intramural portion, the closure of the ostium abdominale or occlusion at any point along the oviduct may almost always be determined. Where there has been a fluid accumulation in the oviduct, as in hydrosalpinx or chronic salpingitis, the characteristic droplets, occasioned by the introduction of an iodized oil, are usually quite easily observed. The problem of sterility occasioned by occlusion at some point along the course of the oviduct is important, but of still greater importance is the determination of the site for salpingostomy, when operative intervention is instituted for the purpose of correcting sterility. Amputation of the oviduct seldom creates an ostium abdominale. A longitudinal incision into a more dilated portion, which may be located by a study of salpingogram, becomes a much more successful surgical procedure. Salpingography is frequently very helpful in the diagnosis of eccyesis, particularly the gravid oviduct.

#### SUMMARY

Uterosalphingography is a safe procedure and may be instituted in practically every case where accurate diagnostic data is required.

Special apparatus has been devised, but the technical requirements may very well be supplied by the common office equipment of a radiological practice.

There are practically no real contraindications where data, which can only be obtained by this method, is required.

Neglect of the pathologic cervix by physicians seems almost criminal because of its profound influence on the general health and its importance as a premalignant lesion.

Reliable microscopic diagnosis may be secured from early lesions in the corpus uteri by the use of a biopsitome, and the dangers incident to the use of a curette are almost completely eliminated.

Sterility, as the result of occluded oviducts, can be ascertained and its correction greatly facilitated by choosing a point along the oviduct



where proper operative intervention may promise good results.

Uterography seems to be the only method available whereby an accurate check may be kept on the reaction to irradiation of neoplasms and other lesions of the uterus.

### DISCUSSION

Dr. Robert A. Arens (Chicago): I believe the previous speaker was a little modest in reciting some of the history of this work. I want to state publicly that in my opinion Doctor Orndoff has done as much as anyone in this country or in the world, in this particular phase of our work. He helped to get us started at Michael Reese some years ago, giving us all the information he had acquired and giving it freely. It was a real inspiration to the speaker. I agree with Doctor Orndoff regarding the safety of the procedure. We have had several things happen, such as the introduction of iodized oil into the vascular spaces in the uterus. The roentgenograms showed the iodized oil in the uterine vessels, going up into the abdomen, etc. While we were very much perturbed at the time, about this untoward event, nothing occurred insofar as the patient was concerned, and I have seen several such cases since. It is really a safe procedure.

This work is of extreme importance in the many instances in which there is a difference of opinion between gynecologists, and work of this type demonstrates the fact that bimanual examination of the female genitalia is not always satisfactory, especially when the patients are obese.

Doctor Orndoff called attention to iodized oil in the peritoneal cavity. I feel it is extremely important where tubal patency is involved that we inject sufficient iodized oil so that we get actual evidence of intraperitoneal spill; otherwise we cannot arrive at any other conclusion except that the tube is patent to the fimbriated end. It has been our custom to follow the original films with roentgenograms taken twelve to twenty-four hours later. Sometimes it takes twenty-four hours for iodized oil to pass through the tubes into the peritoneal cavity so that it can be recognized as a coating on the intestine, which then presents the characteristic picture of intraperitoneal spill.

Doctor Stein and I have been interested particularly in this work from the standpoint of combining pneumoperitoneum plus iodized oil injections, which gives the absolute maximum information which one can expect from this type of examination. This combined method visualizes both the external appearance of the internal genitalia and also the lumen.

I would like to ask Doctor Orndoff what his experience has been concerning Thorotrast, which has been advocated for introduction into the uterus, allowing it to remain for a short time and spilling out, and which produces a coagulum on the mucosa. Being a Thorium compound, it casts a shadow on the film. However, recently, in abstracts appearing in the *Journal of the American Medical Association*, I have noted articles by certain European observers showing that in experimen-

tal work the introduction of Thorotrast into the peritoneal cavity was prone to produce peritoneal sarcoma. As a result, we have been rather disturbed over this situation, and I wonder whether Doctor Orndoff could give us any further light on this matter. If it is capable of doing that in the animal, I feel we should go very cautiously in its use.

### CAUSE FOR REMOVAL OF THE EYE

LEO L. MAYER, M. D.

CHICAGO

Studies on blindness in this and other countries have been fairly numerous. Likewise figures and results of eye injuries are frequently reported. However, up to the present time no inquiry has been made as to the cause for the removal of one eye or its fellow.

It is clear that the removal of one eye enhances the chances of blindness, and if the remaining eye has subnormal vision, or becomes injured or diseased, it is obvious that a condition of near or actual blindness exists. In such a gathering as this it is superfluous to emphasize that the current laws concerning Workman's Compensation has stirred the employer and the insurance carrier to a decided regard for the employees with one eye only.

The records of the Illinois Eye and Ear Infirmary, in Chicago, presented an occasion for the study of the why and wherefore of the removal of an eye. This institution, supported entirely by the State, renders care without charge to all residents of the State having eye, ear, nose and throat conditions, who are unable to pay for private medical attention. Undoubtedly this institution takes care of more eye conditions than any other in this part of the country. Built originally in 1858, then destroyed by the great Chicago fire, the present location has been in use for the past 61 years. The outpatient department has six eye services, one for each day of the week, with the exception of Sunday, and, in addition 100 beds are available in the combined hospital for the use of eye patients. In addition to the State appointed Chief of Staff, each of the 6 services is manned by one attending ophthalmologist, two associates and two adjuncts. Several services have more members than this quota.

From the Illinois Eye and Ear Infirmary. Service Dr. Thomas D. Allen.

Read before the Section on Eye, Ear, Nose and Throat at the Annual Meeting of the Illinois State Medical Society, Rockford, May 22, 1935.

There is an interne for each service and for every two services a resident. The orthoptic service is a separate unit available to all.

We are necessarily concerned only with the eye patients, hence all figures quoted do not include the patients of the ear, nose or throat services. This study concerns the records of the entire year from July 1, 1933 to July 1, 1934, during which time approximately 48,000 eye cases were admitted to the outpatient department. Of these 17,000 were new, never before registered at the Infirmary, the other 31,000 being patients who were seen in previous years. Most naturally the greatest majority were having complaints attributable to errors of refraction. This statement is included here simply to bring to mind that in the choice of ophthalmology as the field for the practice of medicine, refraction must be regarded as paramount.

Many of these patients were hospitalized, some for study and care of medical problems of the eye, and others for the surgical phase. In all there were 1350 operations for various conditions from chalazion to exenteration. Conditions requiring the services of a neurosurgeon are not treated at the infirmary. Four hundred operations were done for cataract and 100 for glaucoma. This will give some conception as to the number and kind of operations included in the 1350.

Now as to the number of eyes necessitating removal. A total of 105 eyes, 66 right and 39 left warranted removal; 2 by exenteration, 9 by evisceration and 94 by enucleation. Thus almost 8% of the operations were for the removal of an eye.

In an analysis of the causative factors it is interesting to note that there may be an immediate reason for removal, as for example, a destructive injury, or a secondary cause, as in the case of glaucoma following cataract extraction. Infection following any type of operation involving the globe, with ensuing panophthalmitis is another secondary cause. The following table is given so that reference may be made as cases or groups of cases are later described:

	Number	Percentage
Eye Patients .....	48,000	100.00
Operations .....	1,350	2.87
Removals .....	105	7.90
Exenterations .....	2	1.90
Eviscerations .....	9	8.90
Enucleations .....	94	89.00

As in all statistical studies of this type much is gained by the author, facts too numerous and overburdened with figures to include in a paper such as this. However, certain important findings may be given in table form and thus the aggravation of persuing figures is somewhat eliminated. The age incidence is of interest. Removal of the eye was necessary between the ages of several weeks to nearly eighty years. They may be grouped in decades as follows:

0— 10 years .....	10
11— 20 years .....	11
21— 30 years .....	7
31— 40 years .....	19
41— 50 years .....	16
51— 60 years .....	17
61— 70 years .....	15
71— 80 years .....	10
81— 90 years .....	0
91—100 years .....	0

The average for the 8 decades in which removals occurred is 13 so that it is noted that fortunately enough the higher incidences are found between the 30th and 70th years.

In the table to follow are listed etiological factors. Some may have been the initial or exciting cause, others are contributing or immediate causes, and also more than one factor may have been responsible in a single case;

Enophthalmitis .....	9
Injury {past .....	37
{immediate .....	14
{cataract .....	17
Operations {glaucoma .....	18
{tumor .....	5
{cataract and glaucoma .....	6
Foreign body {past .....	10
{immediate .....	1
Chronic iridocyclitis after injury.....	14
Glaucoma after injury.....	1

Some explanation of the table is in order.

Enophthalmitis, indicating a suppurative condition of one or more of the intraocular tissues occurred as an endogenous infection during pregnancy, in measles and in influenza. It also occurred after cataract extraction.

A list of the inciting instruments which caused the injuries in these cases are as follows; scissors; knife; milk bottle; arrow; gunshot; pieces of steel, wood and glass; birth trauma by forceps; lye; calcimine; dynamite cap; screw driver and bed post.

Of the five eyes removed because of a definitely diagnosed or suspected tumor all were verified on histo-pathologic section. In only one case, in which absolute glaucoma was the diagnosis, was



an unsuspected intraocular tumor found on section.

Among the 400 eyes operated on for cataract in only 4 was removal necessary because of subsequent acute purulent infection.

The tumor group included sarcoma of the choroid, retinoblastoma (glioma) and granuloma of the orbit. Chronic iridocyclitis was the secondary cause for removal of injured eye in fourteen incidences. Other injured eyes were removed for cosmetic reasons, painful glaucoma, threatened or diagnosed sympathetic ophthalmitis and dislocated or cataractous lenses.

The corneal ulcers were serpiginous, dendritic, septic, and one due to keratitis with lagophthalmos following trigeminal neurectomy.

Subsequent to cataract operation, in addition to infection mentioned previously, eyes were removed because of chronic iridocyclitis, glaucoma, loss of vitreous, iris prolapse and choroidal hemorrhage with their pain and discomfort. One eye was removed because of an obstinate tuberculous scleritis.

Purulent infection followed operation for glaucoma only twice, additional removals being necessitated by the pain of chronic iridocyclitis or absolute glaucoma.

Summarizing it may be pointed out that measures to lessen the incidence of loss of eyes should be directed to prevention of injuries primarily. A study of these eye injuries coming to late operation emphasizes the double need for guarded prognosis together with better methods for the immediate care of injuries. Patients with cataract and also those with glaucoma have about an equal low incidence of removal following operation. Ulcers of the cornea, especially those of the dendritic type, have a relatively high count for loss of the eye, and it behooves us to give them the best of care and attention. Infection following operation occurs seldom in this series.

Of the 105 eyes removed 65 or 61% had a definite history of previous injury.

No eyes were removed following gonorrheal ophthalmitis. This would seem to indicate that the treatment of such was very effective or that the new law requiring the use of a silver nitrate preparation in the eyes of the newborn, or possibly both these factors, have decreased the incidence of blindness due to gonorrhea. In only one record is a note made to the effect that because of a suspicion of ensuing sympathetic oph-

thalmitis removal of the eye was indicated following injury. Perhaps this indicates that a more conservative treatment of such cases is now in vogue because of our ability to observe changes earlier due to better control of the patient and the use of the slit-lamp.

No eye was removed on account of trachoma nor was there any case of retinal detachment in this series.

Correlating this study with the general causes for blindness in the State of Illinois as reported by Dr. Wilder in the January, 1931, issue of the *American Journal of Ophthalmology* it will be noted that trachoma which accounts for so large a number of blind has no place in our study; senile cataract leaves a moderate percentage of blindness following the complications of operations; glaucoma is likewise in the same category; optic atrophy most naturally is not found in our series; trauma has a relatively larger percentage in our series; and opacities of the cornea not due to trachoma is relatively represented.

Many of the injured eyes were removed months and even many years after the initial trauma. It may be said that the prevention of injury to the eye is the greatest single factor to reduce removal of an eye.

#### DISCUSSION

Dr. J. E. Lebensohn, Chicago: This is one of the most interesting statistical papers this Section has had the good fortune to hear for some time. Fortunately in enucleations all the data is available at the infirmary; and as the specimen generally goes to the pathologist, it is easier to get data on this subject than on most others. I should like to stress the number of enucleations after operations for glaucoma and cataract, which shows most dramatically the hazard of these operations.

In painful absolute glaucoma, where the question of intraocular tumor can be definitely ruled out, it is possible with the operation of optico-ciliary neurectomy to relieve the patient and still keep the eyeball. This is preferable to the alcohol block procedure, in that the ocular muscles are not affected.

In leucomas of the cornea, the eyeball may often be made to look fairly well by staining the cornea with gold chloride, and thus avoid an enucleation for cosmetic reasons merely.

Dr. Leo Mayer, Chicago (closing): Dr. Theobald received a copy of my paper and was to have discussed this paper, and this is a note which she left as she had to go back early: "You have a very interesting paper and I am sorry I cannot be there to discuss it. Only 87 eyes were received in the laboratory in the period stated in your paper. Please look over your statistics. I am compiling statistics for a longer time, and it would be very confusing to future generations if there was this



discrepancy in figures." In spite of the fact that Dr. Theobald is very hopeful of the receipt of all eyes enucleated at the infirmary, she does not get them all. I found this discrepancy and I shall explain it to her. An additional factor which Dr. Theobald overlooked is the fact that I have reported also eyes eviscerated which obviously the laboratory cannot hope to receive.

## MEDICAL ADJUVANTS IN THE MANAGEMENT OF INCREASED INTRA-OCULAR TENSION

JAMES E. LEBENSOHN, M. D.

CHICAGO

Prior to 1857 when Graefe announced the tension-reducing action of iridectomy in glaucoma, no medical or surgical recourse was known to relieve the acute distress or halt the progressive blindness of this dread disease. Hippocrates had used the word glaucoma in referring to a type of incurable blindness, but the essential nature thereof—increased intraocular tension—was not appreciated until after William Mackenzie in his text of 1830 explicitly emphasized this feature in the differential diagnosis of glaucomatous amaurosis and cataract. The first to recognize acute glaucoma was William Lawrence, who in 1826 identified the "arthritic iritis" of Beer as this condition.

Graefe had popularized the use of atropin in iritis, but in 1868 warned against its malignant action in glaucoma. This observation gave the suggestion for the later use of miotics. The report of the tension-reducing property of eserine by Laqueur in 1876 was succeeded by A. Weber's introduction of pilocarpine the following year. Thus surgical measures for the relief of glaucoma had been in practice for about twenty years before medical management entered the scene. Since the advent of miotics the most valuable medical innovation has been the introduction of adrenalin as an aid in the treatment of non-congestive glaucoma, though the caution should be here given that its use in all other types of glaucoma is definitely deleterious.

In *acute glaucoma*, not only does preliminary medical management place the eye in a better condition for surgery, but occasionally, where the general condition of the patient renders operation inadvisable, may be sufficiently effective to

obviate the urgency of further intervention. The patient with an inflammatory explosion of acute glaucoma is best immediately hospitalized, and for the succeeding 24 to 48 hours the high intraocular tension should be strenuously combated by measures which aim to produce miosis, sedation and depletion:

1. Miotics are administered on the first day hourly or half-hourly, and on the second day every hour or two. The tension generally reaches its lowest level on the third day, and operation should not be postponed later than then. The miotic mixture originally suggested by Peter Callan which combines eserine and pilocarpine with the lymphagogic and local analgesic action of dionin is recommended in these proportions: Rx, Eserine salicylate, gr. ss; Pilocarpine hydrochloride, gr. ij; Dionin, gr. v; Aqua destillata, 5 ij.

2. During this period the hypodermic injection of morphine (gr. 1/6 to gr. 1/4) every six hours is valuable both as a sedative, and as an additional factor in effecting miosis. The body should be kept warm by adequate covering. In addition, salicylate should be administered freely to maintain analgesia, and produce diaphoresis.

### 3. Local adjuvants:

- (a) Heat tends to relieve pain and reduce tension. For this purpose is available the hot compress, electric pad, Altherm chemical pad, infrared radiation, or diathermy. According to Law,<sup>1</sup> diathermy finds a most valuable application in subacute glaucoma. A current of 600 m.a. for ten minutes daily is advised. In a few days a quiet eye, with tension reduced, often results, upon which operation may be safely performed.

- (b) Leeches applied near the outer canthus reduce local congestion. With the revival of their use in general surgery, their more frequent employment by ophthalmologists is probable.

### 4. Further depletion can be effected by:

- (a) Fluid restriction. Heegard and Larsen<sup>2</sup> have demonstrated that the intraocular tension of glaucoma patients responds markedly to the water intake.

- (b) Saline aperients. In severe cases four to six ounces of a 25% solution of magnesium sulphate may be given as a retention enema, as in combating intracranial tension.

- (c) Diuretics. Particularly marked diuresis

From the Department of Ophthalmology, Northwestern University Medical School.

Read before Section on Eye, Ear, Nose and Throat. Illinois State Medical Society, May 22, 1935.

can be obtained with the newer diuretics—novasulol or salyrgan.

5. In the most drastic cases which do not adequately respond to the above measures there are further available the following means of reducing tension:

(a) Venesection, as recommended by Blatt.<sup>3</sup> From 100 cc. to 300 cc. of blood can generally be safely removed.

(b) Acetyl choline. In acute glaucoma an intramuscular injection of 30 mg. acetyl choline (0.5 cc. of a 6% solution) may dramatically lower the tension 20 points or more in one to two hours (Evans and Evans<sup>13</sup>).

(c) Intravenous injection of concentrated saline. Duke-Elder recommends that 35 cc. of 30% sodium chloride solution be given, and administered slowly so that the injection time consumes not less than ten minutes. The reduction in chamber pressure is accompanied by a marked fall of blood-pressure, and extreme thirst. No fluids however are to be given.

In *chronic non-congestive glaucoma*, medical treatment should be continued only in those cases in which the tension can be kept constantly below the physiological maximum of 25 mm. mercury, and who can be relied upon to report regularly—at least once a month—for a periodic study of the tension, field, and visual acuity. In glaucoma simplex, an increase of tension precedes changes in the field, and should be the primary object of investigation. Inasmuch as intraocular tension is normally highest in the morning, an effort should be made to measure the tension at that time. Where the tension remains permanently normal under miotics, no further advantage is to be gained from surgery. Holth<sup>4</sup> of Oslo, Norway, has kept some eyes normal with pilocarpine for over twenty years. The earlier the diagnosis, the more probable the success of medical management; however, once it is evident that the tension cannot be adequately controlled, surgery should not be delayed. The medical aids available in glaucoma simplex are:

1. Miotics. For continued use pilocarpine is better tolerated and acts more evenly than eserine. The solutions used should be sterile to avoid conjunctival irritation. After the tension has been controlled, the weakest concentration that will maintain miosis should be determined, and the strength (which may vary from  $\frac{1}{2}$  to 2%) only increased as indicated. Unless the patient

is under constant observation, it is probably safest to add some eserine to the pilocarpine solution, inasmuch as some batches of pilocarpine not infrequently are contaminated with jaborin, a mydriatic isomer (Lilienfeld).

2. Massage. The patient should be taught to massage his eyes in the following manner two to three times daily. Elliot<sup>5</sup> recommends that the index fingers be placed on the upper lid as far apart as possible while the patient looks downwards. Each finger then exercises alternately a quick light pressure towards the center of the eye.

3. Adrenalin. Adrenalin therapy in glaucoma simplex should be limited to those cases in which miosis is effected, but does not sufficiently reduce tension. The adrenalin effect can be secured by one of the following methods:

(a) Subconjunctival injection of the 1:1000 solution (one to three minims).

(b) The adrenalin pack (Gradle). A wisp of cotton which has absorbed four minims of the 1:1000 solution is placed under the upper lid of the previously anesthetized eye and held there for three minutes.

(c) Concentrated adrenalin solution, 2%, is instilled (one drop) either as "links-glaucozan," or from a freshly prepared solution of epinephrine bitartrate. Tablets of the latter are available (Suprarenin, Metz), two of which dissolved in 0.1 cc. distilled water yield a 2% solution.

Following the caution of Gifford,<sup>6</sup> several drops of 0.5% eserine salicylate should be instilled at intervals before and after the adrenalin administration to counteract its mydriatic action. The tension reducing effect continues for three to seven days or more, after which the treatment can be repeated. Adrenalin is used merely to enhance the action of the miotics, and their instillation at home should not be interrupted. Hamburger<sup>7</sup> reports cases under this regimen in which tension, fields, and visual acuity have remained normal for five years.

4. Hygienic and systemic measures. The patient with glaucoma simplex should avoid over-fatigue and especially work that involves stooping and straining. The bowels should move regularly, and excesses in eating and drinking avoided. Sedatives and soporifics are indicated if there is anxiety or insomnia. Burnham<sup>8</sup> stresses systemic medication. He seeks to secure prolonged sympathetic stimulation by a series of



daily injections of pilocarpine, increasing from 1/6 to 1/3 grain, for ten to twenty days followed by an interval of six weeks. In the rest period the patient takes : one-half hour after meals a dose of gray powder, gr. ij with Dover's powder; and one-half hour later, sodium iodide gr. x and sodium bromide gr. v. With this "combined treatment" he believes that most cases of early glaucoma simplex can be adequately controlled; and in the cupping variety he regards the medicinal treatment as more trustworthy than surgery. To promote vascular integrity, Evans<sup>12</sup> prescribes a liberal intake of vitamin C, as secured from oranges, grape-fruit, and lemons, and interdicts coffee, tea, cocoa, and such drugs as luminal, pyramidon and cinocophen. It might be beneficial too if calcium were administered, and the sodium chloride intake restricted. A noteworthy fact also is that favorable effect on tension has been observed from combating sympathetic dysfunction through the oral administration of ephedrine (gr. 3/8 t.i.d.), or thyroid (gr. j., t.i.d.) or pilocarpine (gr. 1/30, t.i.d.) (Hardesty<sup>14</sup>).

For *iritis glaucomatosa*, eserine, adrenalin, and paracentesis are contraindicated, as they are each productive of unfavorable after-reactions. The tension in *iritis glaucomatosa* is generally transient, and is best combated by:

1. Adequate treatment of the iritis, including the continued use of atropin, and the administration of dionin, foreign protein, leeches and heat.

2. Reduction of tension can be safely secured by fluid restriction, magnesium sulphate enemas, diuretics, or venesection.

*Chronic uveitis with increased tension* is often confused with glaucoma simplex. The pupil is usually free, mobile, and moderately dilated. The slit-lamp however discloses an aqueous flare (indicative of increased albumin), a few cells in the anterior chamber, some deposits on Descemet's membrane, and occasionally Koeppe nodules on the iris margin. Prolonged mydriasis is contraindicated, as the thickened iris is inclined to form peripheral anterior synechiae. According to M. F. Weymann, the treatment requires:

1. Control of the underlying etiology, which may be tuberculosis, focal infection, or syphilis.

2. Reduction of intraocular tension. Adrenalin packs can be used, or tabloids of epinephrine (1/8 gr.) can be placed in the conjunctival sac.

If the tension remains high, repeated paracentesis is indicated, and if still uncontrolled, an early iridectomy is imperative.

3. When the tension subsides, short acting mydriatics such as euphthalmin and homatropin are prescribed for periodic instillation.

4. Foreign protein therapy of the milder type is beneficial, but violent reactions are to be avoided.

5. X-ray is a useful adjuvant, in a 20% erythema dose, repeated at three to six weeks intervals.

In *absolute glaucoma*, an alcohol block may be substituted for the operation of enucleation or optico-ciliary neurectomy when one is certain that the condition is not secondary to an intra-ocular tumor. The procedure recommended by Fejer<sup>9</sup> consists of the following steps:

1. Conjunctival anesthesia.

2. One cc. of 2% novocaine is injected to the right and left of the eyeball in the neighborhood of the posterior pole.

3. After five minutes, the injections are repeated with 80% alcohol. In fifteen minutes the eyeball is entirely anesthetic, though not softer. A marked proptosis and chemosis ensues from the reaction of the orbital tissues. All the ocular muscles are paralyzed, the ptosis being especially pronounced and prolonged.

The *post-operative treatment* of glaucoma varies with the operation:

1. Immediately after iridectomy, atropine should be instilled, and also on the following day.

2. Immediately after trephining, Elliott<sup>10</sup> avoids any instillations unless the pupil shows a tendency towards upward displacement, when eserine is used. If the tension is down he starts the use of atropine on the third day to avoid a quiet iritis with consequent posterior synechiae. If after operation tension recurs, a preliminary trial of eserine and massage is advised before further intervention.

3. After cyclodialysis, Meller<sup>11</sup> advocates miotics, as the consequent contraction of the pupil should aid in pulling the freed root of the iris away from the angle of the anterior chamber.

In *juvenile glaucoma* and in most cases of *secondary glaucoma*, surgical treatment is primarily indicated, and medical adjuvants are of little avail.

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## DISCUSSION

Dr. Harry Woodruff, Joliet: Dr. Lebensohn's paper covers a very vast field—all forms of glaucoma—and as my discussion is limited to three minutes I will not be able to say very much. I approve of many of his methods of treatment. Whatever form of glaucoma may be, you know the tension is the factor that is destroying vision and the longer the tension continues, the greater the destruction of vision. He mentioned the use of saline intravenous injection according to Duke-Elder's experiments, and I think that is well emphasized, not that it can cure, but temporarily the tension can be reduced. No matter what the cause, whether it can be relieved or not by miotics, it can be relieved by 30% salt solution or even 5%. Strange as it may seem, tension in normal eyes can be reduced by these injections. The effect is transient. In a paper in 1931 before the American Medical Association on intraocular hemorrhage, I referred to Duke-Elder's work and also some personal experiences, and in every one the tension was satisfactorily reduced, but the effect lasted only twenty-four hours. However, it is valuable in cases where an operation is to be done and you wish to avoid the complication of intraocular hemorrhage.

Dr. Lebensohn makes a statement that should be positively and definitely opposed; that is regarding the effect of eserine or miotics on cases of chronic simple glaucoma. If you get reduction of tension to within normal limits, you do not operate, according to his statement. Those are the cases where you get the best results by operation. Unfortunately, the patient is relieved and the doctor is relieved and, therefore, does not operate, but you know what becomes of these cases. They do not stay with you for twenty years; they

go from doctor to doctor. Consequently the statement made by De Wecker many years ago, that "while eserine never cured a case of glaucoma, it prevents many from being cured" is still true. The patient would be better off if he had reduction in tension by operation and it would not be necessary to continue the use of miotics. The failure to reduce tension by miotics is an indication that you have structural changes in the eye. You have adhesions of the iris to the cornea. Here operative procedure is definitely necessary but the prognosis is not as good in such cases. It is more difficult to get internal drainage or external drainage, and still some operative procedure is necessary.

I would say in closing that if you have a case of chronic simple glaucoma and you can reduce the tension by eserine, by all means operate on that case before these structural changes are too far advanced.

Dr. I. R. Pritikin, Oak Park: Dr. Lebensohn's paper is very complete. With reference to the use of diathermy and heat, lately short wave has been used in place of diathermy, and we find it more effective because it has an effect on the hydration processes that go on. With regard to vitamin C, it is not the vitamin C but other products in the fruit juices which have an effect on the refractive index of the serum. Regarding the restriction of sodium chloride, that will affect the refractive index of the serum, which is changed because of the hydration, and it activates the sluggish movement of the protein particles in the serum that is noted so much in glaucoma.

Dr. M. H. Lebensohn, Chicago: We agree that glaucoma should always be operated on. But if a patient has only one eye, especially when operated on unsuccessfully, one would hesitate to operate. I have one patient whom I have been seeing for nine years, operated on by a competent man on the left eye; the tension is normal but there is no vision. She moved to Chicago about nine years ago and I have been treating her right eye with miotics since. Vision in that eye is normal, tension is normal, and the fields practically the same as nine years ago. She comes in every week or every two weeks and fully understands the importance of doing so. If you have control of the patient and there is only one eye, by all means carry on as long as you can medically.

Dr. Louis Bothman, Chicago: I would like to call attention to one thing that Dr. Lebensohn did not mention. I wonder if any of you have ever used eserine baths in the treatment of an acute glaucomatous attack. We know that in certain cases the tension can be reduced by dropping eserine into the conjunctival sac every ten or fifteen minutes or half-hour intervals. This does not always lower the tension. I have seen some remarkable benefits from eserine baths. This consists of holding the eye in an eye cup containing 1% or 2% eserine or the same strength pilocarpine. I have seen the tension come down from 110 to 30 mm. of Hg. overnight in a case where it could not be reduced by instilling eserine into the conjunctival sac. The patients may have severe pain and nausea

or even emesis, but the treatment does reduce the intraocular tension.

Dr. J. E. Lebensohn, Chicago (closing): I want to thank the various members who have discussed this paper for the ideas with which they have amplified my statements. I perhaps did not state clearly enough that whether or not one should attempt to control a case of chronic glaucoma medically depends very much on the patient; one must not only have the tension under control but the patient as well.

#### SURGICAL TREATMENT OF GASTRIC AND DUODENAL ULCERS

At the Oct. 28, 1934, meeting of the Royal Society of Medicine of Ghent, Finsterer of Vienna stated that subtotal resection of the stomach is the operation of choice in gastric and duodenal ulcer. In 363 such cases there were thirteen deaths, a mortality of 3.5 percent.

In 920 operations for duodenal ulcer there were thirty-two deaths, a mortality of 3.4 per cent. These favorable results are in part due to the use of splanchnic anesthesia and to the method of anastomosis (Hofmeister-Finsterer technic). In 95.8 per cent of the cases of gastric ulcer, complete cure followed resection. The same was true of 94.6 per cent of the duodenal ulcer cases. Diarrhea following subtotal resection has been observed in only six cases, and even here the diarrhea was of short duration. Finsterer has never seen a postoperative secondary or pernicious anemia. In cases of gastric or duodenal ulcer perforation, the intervention consists merely in closure of the perforation by suture.

In 273 resections for gastric ulcer, microscopic examination revealed the presence of cancer in sixty-three, or 23.1 per cent. The prognosis in these cases is unfavorable. Eleven of twenty-six cases of this kind had a fatal outcome within five years. Jejunal ulcers following gastro-enterostomy should always be operated on radically. The operation should include removal of the anastomotic area, ulcer-bearing area of the duodenum and two-thirds or even three-fourths of the stomach. Of 168 such operations for jejunal ulcer the outcome was fatal in nineteen, a mortality of 11.3 per cent. Operation should not be delayed in cases of gastro-jejunal fistula lest the patient die of starvation. One should operate only if there are strict indications. If one has decided, however, to operate, only radical measures should be considered.

"The first, and in some respects, the most important function is—to lay a foundation for that unity and friendship which is essential to the dignity and usefulness of the profession . . . The man who knows it all and gets nothing from the Society reminds one of the little dried up miniature of humanity, the prematurely senile infant, whose tabetic marasmus has added old age to infancy. . . . Why should he go to the Society? . . . It is a waste of time, he says, and he feels better at home, and perhaps that is the best place for a man who has reached this stage of intellectual stagnation. . . ."—*William Osler*.

#### Marriages

VACLAV GEORGE DVORAK, Chicago, to Dr. Ella Helen Valenta, of Cicero, Ill., October 30.

MARTIN G. ERICSSON, to Miss Martha E. Anderson, both of Chicago, October 26.

MARTIN CARL LINDMAN, Rockford, Ill., to Miss Alice Dorothy Port of Youngstown, Ohio, March 31.

DAVID E. MARKSON, to Miss Esther N. Anderson, both of Chicago, October 12.

CLIFFORD O. MCCREEDY, Aledo, Ill., to Miss Permelia Donaldson of Monmouth, October 24.

#### Personals

Dr. Charles B. Reed gave a talk on "The Social Security Act" before the Woman's Auxiliary of the South Chicago Branch on December 2.

Dr. A. R. Hollender addressed the Detroit Otolaryngological Society, November 20, on "The Scope of Physical Therapy in Otolaryngology."

Dr. Charles B. Reed and R. R. Ferguson represented the Illinois State Medical Society at a conference of Presidents and Health Chairmen of the Chicago Parent Teacher Associations at the Stevens Hotel, December 3.

Dr. Paul B. Magnuson addressed the Sangamon County Medical Society on December 5.

Dr. Robert S. Berghoff held a heart clinic for Perry County Medical Society on December 5. At the evening scientific meeting of the Society Dr. Berghoff gave a paper on "Common Forms of Heart Disease" and Dr. John B. O'Donoghue, a paper on "Cholecystitis."

Maurice L. Blatt gave a talk on "Neuromuscular Diseases in Childhood" before Will-Grundy County Medical Society on December 4.

Drs. Joseph A. Jerger and John P. O'Neil have endowed an Artificial Fever Therapy Division in The John B. Murphy Hospital.

Louis Rudolph has been appointed Associate Professor of Obstetrics, Loyola University School of Medicine.

Dr. Ben Z. Rappaport addressed the Chicago Society of Allergy, November 18, on "Treatment of Patients Highly Sensitive to Pollen."

Dr. Harry C. Rolnick addressed the Chicago



Urological Society, November 21, on "Retrovesical Sarcoma."

At a meeting of the DuPage County Medical Society in Downers Grove, November 20, Dr. Harry E. Mock, Chicago, discussed treatment of skull fracture.

Dr. Chester C. Guy, among others, addressed the Chicago Pathological Society, November 11, on "Tumors of the Breast in Children."

Dr. Henry C. Sweany discussed "Recent Trends in the Approach to Study of Silicosis" before the Chicago Tuberculosis Society, November 15.

Mr. Homer J. Byrd, Arlington Heights, has recently been appointed superintendent of registration of the state department of registration and examination.

At a meeting of the Chicago Ophthalmological Society, November 18, speakers included Dr. Philip D. O'Connor on "Correction of Cicatricial Ectropion by the Detached Skin Graft."

Dr. Anton J. Carlson, Chicago, addressed a public meeting in Canton, November 25, on pneumonia; the session was sponsored by the Fulton County Medical Society.

Dr. Leon Unger addressed the Lake County Medical Society, December 10, on "Allergy."

Dr. Hattie B. Melaik was elected president of the Kewanee Physicians club this week at a meeting held in the Parkside Hotel. Dr. Thomas B. Carney was named vice-president and Dr. William R. Smith secretary and treasurer. Dr. Melaik succeeds Dr. C. A. Fortier as president.

Speakers before the Chicago Roentgen Society, November 14, included Dr. Bernard H. Nichols, Cleveland, on "Roentgenology in the Diagnosis of Obstructive Lesions of the Ureters."

The Chicago Neurological Society was addressed November 21, among others, by H. W. Magoun, Ph.D., and W. Kendrick Hare, M.S., on "Postural Reactions from Stimulation of the Interior of the Cerebellum."

Dr. Leo K. Campbell, Chicago, addressed the Will-Grundy County Medical Society, November 27, on "Diagnosis and Management of Diabetes Mellitus." The society was addressed by Dr. Maurice L. Blatt, Chicago, December 4, on "Neuromuscular Diseases in Childhood."

At a meeting of the Peoria City Medical So-

ciety, December 3, Dr. Arthur Sprenger, Peoria, discussed "Recent Observations on the Etiology and Treatment of Urolithiasis." Dr. Leon M. Bogart, Flint, Mich., spoke, November 19, on "Abdominal Adhesions."

At a meeting of the Henry County Medical Society in Kewanee, November 7, speakers were Drs. Nathan S. Davis III and Robert O. Ritter, Chicago, who discussed coronary arteriosclerosis and fractures of the extremities, respectively.

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## News Notes

—The seventy-second annual midwinter meeting of the Chicago Dental Society will be held at the Stevens Hotel, February 17-20.

—The Mercer County Academy of Medicine was recently organized; meetings will be held twice each month, it was reported.

—The Illinois Department of Health began a new series of dramatized broadcasts over Station WCBS in Springfield, December 2. The programs will be presented on Monday and Friday afternoons, portraying in the form of playlets the health adventures and experiences of the Hunter family, who live in the imaginary village of Utopia.

—Students entering Loyola University School of Medicine in October, 1939, must present a minimum of three years of college (premedical) work, according to an announcement from the dean. Accordingly, all students enrolling in the pre-medical curriculum beginning in the fall of 1936 will be subject to the three year premedical requirement. The predental requirement was raised from one to two years, to become effective in the fall of 1937.

—Dr. Elmer L. Sevringhaus, associate professor of medicine, University of Wisconsin Medical School, Madison, lectured on "Clinical Pathology of Endocrine Disturbances" at the Institute for Psychoanalysis, December 10. According to previous announcement, Dr. Solomon Strouse was to have been the speaker but illness has compelled him to leave Chicago for the winter. Dr. Sevringhaus will also lecture, January 10, when he will review the results of the clinical research of his group during the last few years on the mental and peripheral nervous



disturbances associated with various irregularities in the menstrual cycle and during the menopause.

—Seventy-six hospitals cooperating in a study of maternal mortality in Chicago reported 270 maternal deaths in 1934. Of 38,139 mothers delivered in the hospitals, operative intervention was used for 7,765. There were 2,059 abortions reported and 248 ectopic pregnancies. This work is being sponsored by the maternal welfare committee of the Chicago Gynecological Society. The committee is made up of sixty-eight physicians, who represent the seventy-six hospitals in the city doing obstetric work. It is hoped to continue the study until data have been accumulated on 1,000 cases. More than 600 cases have already been studied.

—The Belleville branch of the St. Clair County Medical Society held election of officers at a regular meeting yesterday afternoon in St. Elizabeth Hospital.

Dr. Charles Bauman was elected president, Dr. Phillip Griesbaum, of Lebanon, vice-president, and Dr. G. C. Otrich secretary. Dr. W. A. Dew is the retiring president.

On the board of censors the following were elected: Dr. J. E. Wheeler, Dr. L. W. Roth and Dr. C. E. Baldree.

Dr. Otrich was elected delegate to the Illinois State medical meet to be held in Springfield next May. Dr. Edmond Bechtold was elected alternate.

—Dr. Robert Sonnenschein addressed the Rock River Valley Eye, Ear, Nose and Throat Society at Rockford, Illinois, December 17th on the subject of "Methods and Significance of Functional Hearing Tests and Their Bearing upon the Diagnosis and Treatment of Non-Suppurative Middle Ear Disease."

## Deaths

JULIUS MORRIS ABELIO, Los Angeles; College of Physicians and Surgeons of Chicago, 1892; formerly on the staff of the Mount Sinai Hospital, Chicago; aged 72; died, November 8, in the Cedars of Lebanon Hospital, of bronchopneumonia.

JENNIE BAKER, Chicago; College of Medicine and Surgery, Chicago 1908; aged 72; died, September 28, of cerebral hemorrhage.

THOMAS A. CAHILL, Chicago; Chicago College of Medicine and Surgery, Medical Department of Val-

paraiso University, 1904; aged 56; died, September 8, of carcinoma of the lung.

DANIEL DAVID COFFEY, Chicago; University of Maryland School of Medicine, Baltimore, 1903; for many years manager of the Chicago State Hospital; aged 55; died, November 22, of myocarditis.

CITARLES CLAUD GREENFIELD, Argenta, Ill.; St. Louis College of Physicians and Surgeons, 1904; member of the Illinois State Medical Society; aged 56; died, September 13, in Decatur, of strangulation of the bowel.

JOHN F. HARGAN, Mound City, Ill.; University of Louisville (Ky.) Medical Department, 1891; member of the Illinois State Medical Society, aged 71; died, September 29, in St. Mary's Infirmary, Cairo, of cerebral hemorrhage.

HOMER E. JAMISON, Millburn, Ill.; College of Physicians and Surgeons of Chicago, 1894; aged 77; died, November 9.

FREDERICK HENRY LANGHORST, Elgin, Ill.; Rush Medical College, Chicago, 1900; a Fellow, A. M. A.; fellow of the American College of Surgeons; aged 64; on the staffs of St. Joseph's Hospital and Sherman Hospital, where he died, September 27.

JAMES ALLEN MARSHALL, Pontiac, Ill.; Detroit College of Medicine, 1886; a Fellow, A. M. A.; past president of the Livingston County Medical Society; for thirty-five years attending surgeon at the Illinois State Reformatory; aged 74; died, November 15, in the Passavant Memorial Hospital, Chicago, of carcinoma of the transverse colon.

JOHN GORDON MCGUIRE, Chicago; Chicago College of Medicine and Surgery, 1911; also a minister; aged 62; died, November 30, in the Cook County Hospital, of cerebral hemorrhage.

CHRISTOPHER LORENZO OATMAN, Collinsville, Ill.; Barnes Medical College, St. Louis, 1899; aged 58; died, October 4, of chronic myocarditis.

JOHN SAID PEREKHAN, Chicago; Rush Medical College Chicago, 1888; a Fellow, A. M. A.; aged 68; died, November 22, in a local hospital of carcinoma of the stomach.

ELISHA L. REEVES, Decatur, Ill.; Eclectic Medical Institute, Cincinnati, 1890; aged 69; died, September 30, of angina pectoris.

ARTHUR ROWLEY REYNOLDS, Chicago; Bellevue Hospital Medical College, New York, 1876; a Fellow A. M. A.; health commissioner of Chicago from 1893 to 1895 and again from 1897 to 1905; in 1911 named lieutenant and in 1917 a captain in the medical reserve corps of the army; aged 81; died, November 14, in the Augustana Hospital, of injuries received when he was struck by an automobile.

DAVID DOUGLAS STEINER, Quincy, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1886; aged 75; died, September 27, of cerebral hemorrhage.

WILLIAM H. ZORGER, Champaign, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1886; member of the Illinois State Medical Society; aged 75; died, September 22.

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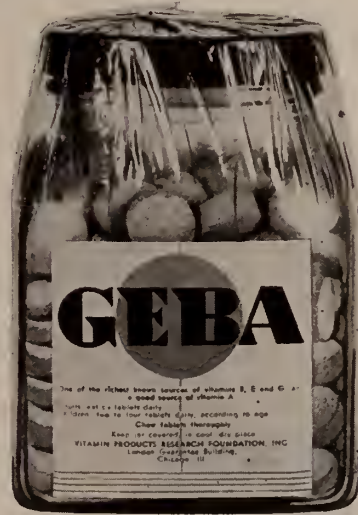
—J. S. McLester: "Nutrition and Diet in Health and Disease."

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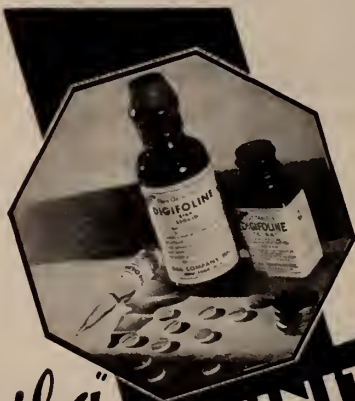
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## Book Review

NEW PATHWAYS FOR CHILDREN WITH CEREBRAL PALSY.

By Gladys Gage Rogers and Leah C. Thomas. New York. The Macmillan Company. 1935. Price \$2.50.

This is a highly commendable contribution. It should be in the hands of every physician and physical therapist, every parent and teacher who is trying to help a case of cerebral palsy. The author has told us in a very readable way how to attain the proper mental attitude in dealing with a handicapped child. The work is packed with practicality.

ESSENTIALS OF PSYCHOPATHOLOGY. By George W.

Henry. Baltimore. William Wood & Company. 1935. Price \$4.00.

The wide appreciation accorded the author's earlier work, *Essentials of Psychiatry*, has encouraged the production of this important entirely new companion volume on psychopathology. Designed chiefly for physicians and medical students, it has great value for psychologists, and all students of psychopathology. It is a clear concise presentation of the nature and causes of personality disorder, with methods of examination described. A valuable and up-to-date book in a field of rapidly increasing interest and importance. The chapters include: Heredity and Environment—Personality and Constitution—The Function of the Brain—

(Continued on page 23)

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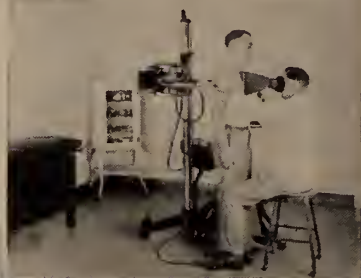
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# Pediatricists Discuss the Treatment of INFANTILE ECZEMA

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From the round table conference on infantile eczema at the Fourth Annual Meeting of the American Academy of Pediatricists came the following significant suggestions relative to the infantile eczema group of conditions and their treatment.

The infantile eczema group, as outlined by Dr. Lewis Webb Hill, includes:

1. Seborrheic dermatitis
  - (a) Erythrodermia desquamative
2. Allergic eczema
  - (a) Atopic eczema
    - (1) Infantile
    - (2) Chronic in older children
  - (b) Contact dermatitis.
3. Mycotic eczema\*

\*This, of course, should not be called "eczema" but it is so often clinically undistinguishable from chronic eczema that it is probably best to include it in the group.

Dr. Irving McQuarrie reviewed the experiments of Dr. Burr (wherein rats deprived of unsaturated fatty acids developed eczema-like conditions) and emphasized the indispensable requirements in animal nutrition

for unsaturated fatty acids, in particular linoleic and linolenic.

Dr. McQuarrie indicated the transfer of the experimental work on rats to the treatment of eczematous babies by Dr. Hansen with highly encouraging results.

The optimal dosage is not established as yet, but according to McQuarrie, is in the neighborhood of an ounce a day—from one-half to two teaspoonsful for babies ranging from five to eighteen months.

Dr. McQuarrie further pointed out that corn oil, like all animal oils, is less effective than linseed oil; that cod liver oil is not as effective as linseed oil derivatives.

Dr. Hill indicated that one of the virtues of treatment with linoleic and linoleic acid unsaturates, is their perfect harmlessness.

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## Book Review

(Continued from page 18)

Toxic Factors—The Relation of Physical Disease to Personality Disorder—Vegetative Functions and Emotional Reactions—Personality Integration—Mental Dynamisms—Maladjustment in Childhood—Psychiatric Case Records—Methods of Examination—Psychopathological Phenomena.

DISEASES OF WOMEN. By Harry Sturgeon Grossen, M. D., and Robert James Grossen, M. D. Eighth edition. Entirely revised and reset. With one thousand fifty-eight engravings, including one color plate. St. Louis. The C. V. Mosby Company. Price \$10.00. The great development of knowledge concerning the

endocrine system and its relation to the genital tract has released a flood of light on gynecological problems. The fact that this work has gone through eight editions in rapid successions speaks volumes in its favor. The work should be in the hands of every gynecologist, surgeon and general practitioner.

INFANT NUTRITION. By Williams McKim Marriott, M. D. Second edition. St. Louis. The C. V. Mosby Company. 1935. Price \$4.50.

This work is intended for a text-book for infant feeding for students and practitioners of medicine. This edition represents a complete revision of the previous edition published five years ago. Many of the chapters have been almost completely rewritten.

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## Book Notes

**DEMONSTRATIONS OF PHYSICAL SIGNS IN CLINICAL SURGERY.** By Hamilton Bailey, M. D. Fifth edition revised. With 341 illustrations, some in color. Baltimore. William Wood & Company. 1935. Price \$6.50.

One of the most highly and widely appreciated books we have ever published. An instantaneous success with the first edition in 1927 and in its revised editions selling continuously all over the country ever since. A thoroughly practical book for everyday use in diagnosis. Demonstrates plainly, in text and picture, everyday physical symptoms speedily apparent to physicians and surgeons who become familiar with this valuable book. The text has been carefully revised, and there are additions to the well-nigh perfect illustrations which are so strong a feature, averaging more than one to each page. There is no other comparable book, and it *will certainly improve your diagnostic abilities.*

**THE SPECIAL PROCEDURES IN DIAGNOSIS AND TREATMENT.** By Don Carlos Hines, M. D. Stanford University Press. 1935. Price \$1.00.

**MEDICAL TREATMENT OF GALLBLADDER DISEASE.** By Martin E. Rehfuss, M. D., Clinical Professor of Medicine at Jefferson Medical College, Philadelphia; and Guy M. Nelson, M. D., Instructor of Medicine at Jefferson Medical College, Philadelphia. 465 pages with 113 illustrations. Philadelphia and London. W. B. Saunders Company. 1935. Cloth, \$5.50 net.

In this volume the author presents the subject of gallbladder disease from the medical point of view. In this work he draws from his enormous personal experience in treating gallbladder disease both from the medical and surgical standpoint.

**THE PARATHYROIDS IN HEALTH AND IN DISEASE.** By David H. Shelling, M. D. Illustrated. St. Louis. The C. V. Mosby Company. 1935. Price \$5.00.

During the past few decades, the parathyroids have attracted the attention of a constantly increasing number of investigators. In this work the author has dealt with the various phases of the subject very completely and thus has brought the subject of thyroid disfunction strictly uptodate.

**CHEMISTRY IN THERAPEUTICS.** By Walter Bryant Guy, M. D. Philadelphia. W. Roy Huntsman. 1935. Price \$3.00.

This book is a valuable contribution to the science of medicine. Included in this work is the explanations of the pH scale of acid and alkaline values. The author's hypothesis of the etiology of cancer and other neoplastic diseases is fully explained.

**IMMUNOLOGY.** By Noble Pierce Sherwood, M. D. Illustrated. St. Louis. The C. V. Mosby Company. 1935. Price \$6.00.

This work is intended for medical students and for others who have had training in pathogenic bacteriology, inorganic and organic chemistry and who are interested in the underlying principles involved in infection resistance, and diagnostic laboratory tests.

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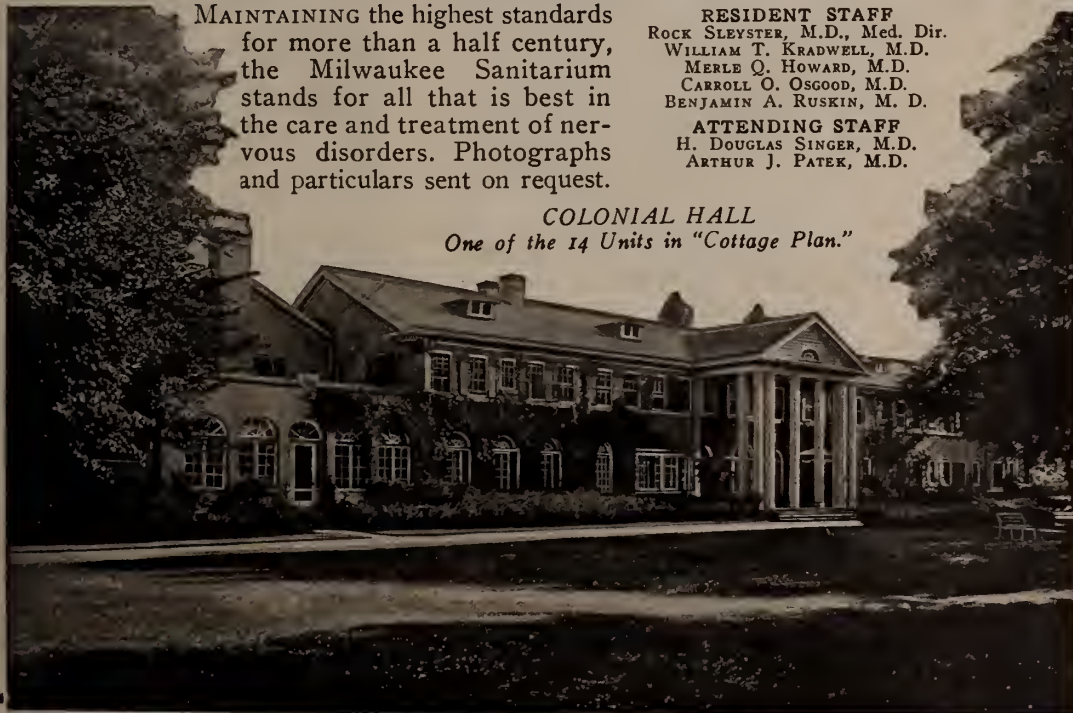
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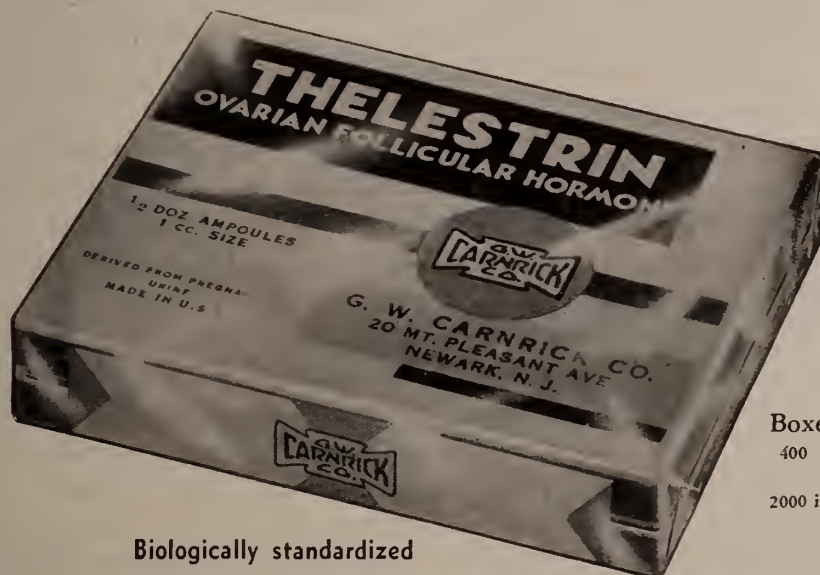
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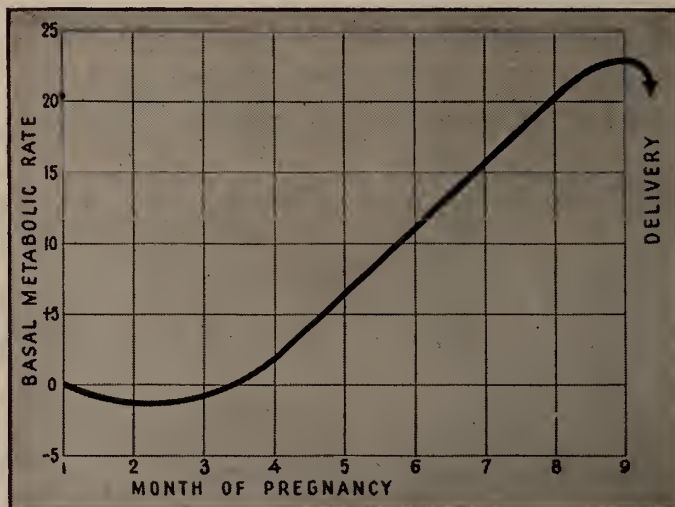
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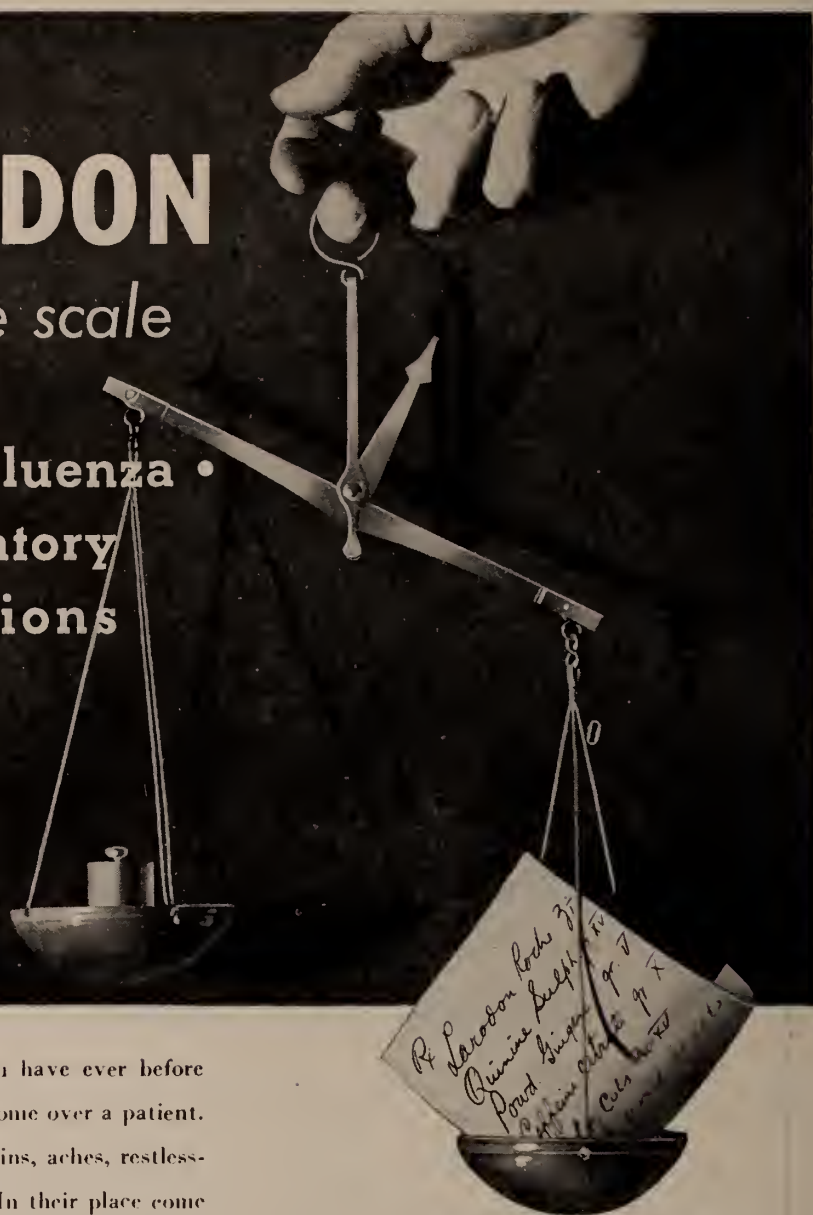
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Proc. Soc. Exp. Biol. and Med., 1934, 32, 241-245  
Laryngoscope 1935 XLV, 149-154  
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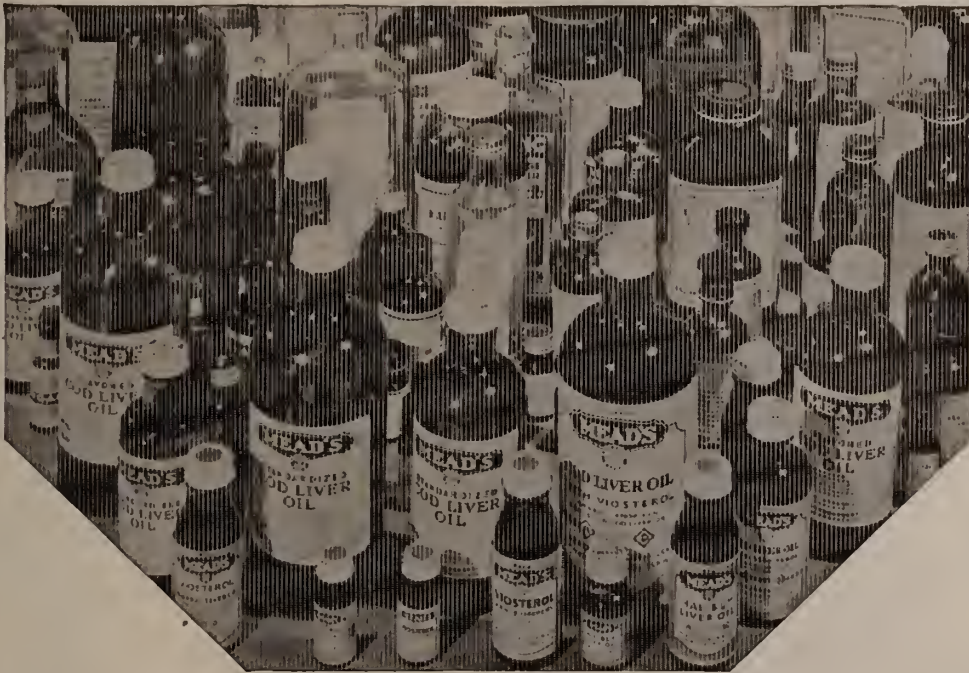
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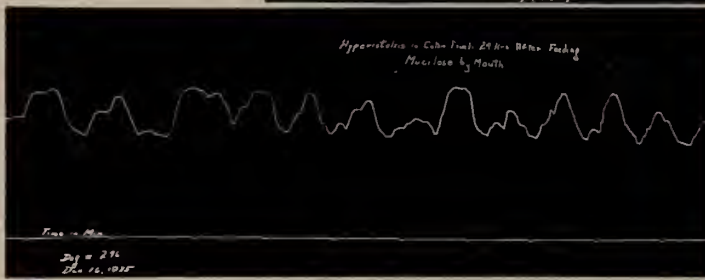
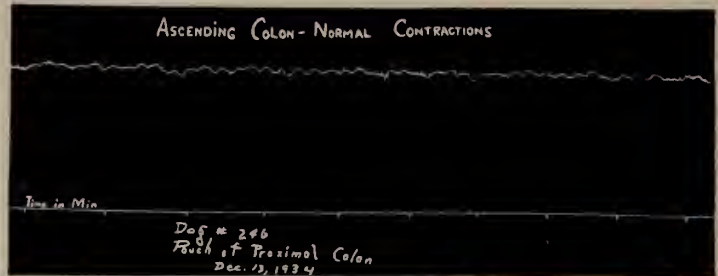
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and vitamin D is to Rickets,  
and vitamin G is to Pellagra—

Vitamin E is to reproduction.

1. Jour. of Biological Chemistry, Vol. 104. No. 2, Feb., 1934.
2. Biochemical Journ., Vol. xxix, No. 2, Feb., 1935.
3. Journ. of Morphology., Vol. 56, No. 2, Sept., 1934.
4. Memoirs Univ. Calif., Vol. 8, 1927.
5. Proc. Nat. Acad. Sci., Vol. 2, p. 377, 1925.
6. J. Exp. Zool., Vol. 45, p. 159, 1926.
7. J. Nutrition, Vol. 1, p. 311, 1929.
8. Am. J. Anat., Vol. 52, p. 153, 1933.
9. Endokrinologie, Bd. 7, S. 91, 1930.
10. Am. J. Anat., Vol. 52, p. 153, 1933.

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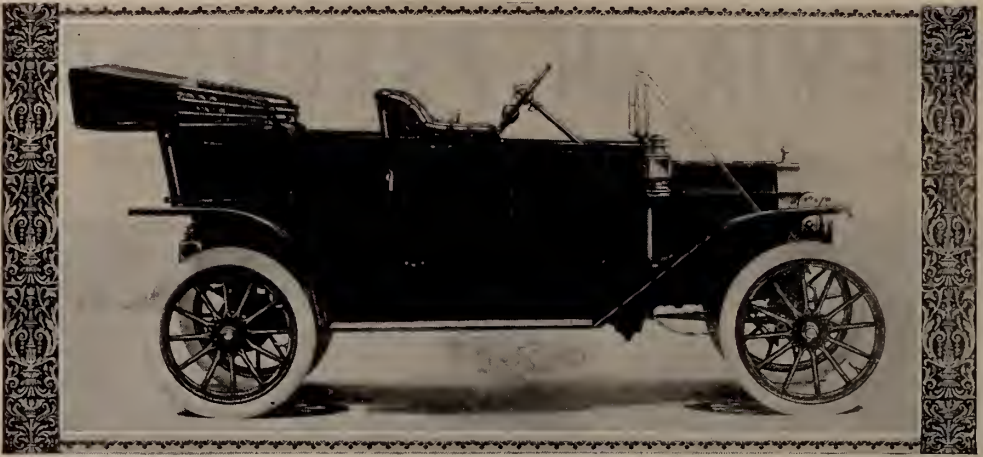
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# CANNED FOODS AND THE PUBLIC HEALTH

## I. The "Ptomaines"

• Many requests received for further information on canned foods have inquired as to some of the public health aspects of this class of foods. We appreciate the frank interest of our readers in this subject about which so much misinformation exists. We are glad, therefore, to devote this discussion, as well as subsequent ones, to the most popular of the lay misconceptions concerning the wholesomeness of commercially canned foods.

Some laymen hold the belief that canned foods, in some mysterious manner, develop "deadly ptomaines" within the can and hence the consumer of such foods stands in danger of "ptomaine poisoning". In the light of modern knowledge, this belief is ludicrous; it probably had its origin in the old "ptomaine theory" of food poisoning, now so thoroughly discredited by modern medical authorities (1).

Between the years 1870 and 1880, a large number of substances were obtained from protein material which had undergone bacterial putrefaction. These substances were aptly called "ptomaines", from the Greek "ptoma" or "dead body". Toxicologists of the day ascribed marked toxic properties to the new found ptomaines, chiefly by injection studies rather than by feeding tests.

The science of bacteriology was then in

its infancy—the true causes of food infection or intoxications were not known. Consequently, the discovery of ptomaines, with their alleged toxic properties, permitted the convenient diagnosis of "ptomaine poisoning" for all illnesses following the ingestion of foods. Today, we know that such illnesses usually result from the ingestion of food which had been infected by certain bacterial groups, and not from protein degeneration products such as ptomaines (2, 3).

One authority has stated that "ptomaine poisoning is a good term to forget" (4).

To this we might add that it would also be well to discard the old, unfounded belief that foods in the tin can develop substances hazardous to health.

Canned foods are merely selected foods which, after proper preparation, are sealed in hermetic tin containers and given a heat process calculated to destroy pathogenic and spoilage organisms which might be present on the raw foodstuff. The hermetic seal prevents future infection of the food by such organisms and insures its preservation and wholesomeness.

Such are the simple facts. The cooperation of the medical profession is earnestly solicited in combating the ludicrous, yet widespread, lay prejudice against commercially canned foods.

## AMERICAN CAN COMPANY

230 Park Avenue, New York City

(1) Journal American Medical Ass'n, 90, 459 and 1573 (1928).

(2) Food-Borne Infections and Intoxications, F. W. Tanner, Twin City Pub. Co., Champaign, Ill., 1933.

(3) Food Poisoning and Food-Borne Infections, E. O. Jordan, University of Chicago Press, 2nd Ed., 1930.

(4) Preventive Medicine and Hygiene, M. J. Rosenau, Appleton-Century, New York, 6th Ed. 1927, p. 668.

*This is the ninth in a series of monthly articles, which will summarize, for your convenience, the conclusions about canned foods which authorities in nutritional research have reached. We want to make this series valuable to you, and so we ask your help. Will you tell us on a post card addressed to the American Can Company, New York, N. Y., what phases of canned foods knowledge are of greatest interest to you? Your suggestions will determine the subject matter of future articles.*



The Seal of Acceptance denotes that the statements in this advertisement are acceptable to the Committee on Foods of the American Medical Association.

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# ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF  
THE ILLINOIS STATE MEDICAL SOCIETY

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## Editorial

### OLD PATENT MEDICINE CONCERNS NEVER HAD BETTER BALLY- HOERS THAN DO MODERN PHILANTHROPIC FOUN- DATIONS

Radio audiences, both lay and professional, have been listening with interest and more or less concentration to debates on the air as to who should pay everybody's doctor's bills.

Fanciful phrases arrayed against forceful facts is the true digest of those discussions. His-trionic Bengal lights as flaunted by the lay arguments of a gentleman by the name of Foster, a professional economist in the employ of a large lay foundation, quite confused the odds-bodkins listener on the vast circuits, no matter how much ire they aroused in the well-cocked medical ear. Economist Foster seems to have swallowed, hook, line and sinker, the almost uni-versally condemned report of "The Committee on the Costs of Medical Care." From this denounced majority report Economist Foster quoted and abridged and epitomized largely and loudly. On one occasion he said in part and backed up this saying by a signed article in "The Rotarian, November, 1935," that:

"The Committee on the Costs of Medical Care presents nothing more revolutionary than the proposal that such experiments in group practice and group payment as are already under way should be tried out wherever the people of a community wish to try them. Yet this mild proposal is condemned by the Editor of the *Journal of the American Medical Association* as 'Socialism and Communism—inciting to Revolution.' The American Medical Association moreover, at its annual convention last year in Cleveland, O., went so far as to pass a resolution declaring that 'however the cost of medical service may be distributed the immediate cost should be borne by the patient able to pay at the time the service is rendered.'"

Physicians who missed out on the fallacious

debate of the health insurance clan will find their hair raising in horror as they view in cold print other portions of the Foster argument and which read in part: (See "The Rotarian" for Nov., 1935) and with a passing broadside at the conclusions of the A. M. A.

"This absolutely shuts out all pre-payment plans. It condemns group payments on an insurance basis. If it means what it says, it condemns any doctor who accepts a salary for his services from a group of patients. Thus the American Medical Association reiterates its assertion that those who pay the bills for medical care have no right to say how the bills shall be paid," continues Economist Foster.

"For years, the American Medical Association has repeatedly assured us that it favors experiments toward more satisfactory methods of paying for medical care; but to date it has not advanced any far-reaching plans of its own, and when any group outside the Association, such as the Ross-Loos group in Los Angeles, starts an experiment, those in control of the profession respond by trying to excommunicate the co-operating doctors.

"But, we are told, group practice 'destroys the precious personal relation between the patient and his family physician.' I do not find this the case among the many patients with whom I have talked in Los Angeles group clinics. Each patient selects his own physician from a panel, and this physician has continuous charge of his case. The satisfaction of the patients is shown by the rapid increase in the membership.

"Why, in any event, should the fact that the physician is sure of his pay be a barrier between him and his patient? The bills are not among the 'precious personal relations' between the doctor and the patient. On the contrary, the bills are the chief cause of friction. Moreover, under prevailing individual practice, millions of men, women, and children have no relations, personal or otherwise, with a family physician, or with any other kind; and it is primarily for some of these uncared for millions that group plans are proposed.

"Any proposal whatever for collective attack on the problem is at once condemned as 'state medicine,' or as a step toward 'state medicine.' Inevitably, so it seems, collective action means

that the expectant mother cannot be confined except by vote of the Board of Aldermen.

"But why these sudden fears of political control of medical practice? Those who view with alarm all new adventures in medical economics seem to overlook the fact that already we have collective control of the economic phases of much medical practice. That is to say, we now care at public expense for war veterans and for the army and navy, as well as for those who suffer from mental disorders, from tuberculosis, and from a great many other diseases.

"Also, collectively, we furnish free medical care for the indigent and do most of the work for the prevention of contagious diseases. Most of the hospital beds, too, are in public institutions. In fact, above 15 per cent. of the national bill for medical care is paid from public funds. To date this is our answer to the contention that medicine has a right to control its own affairs. To this extent we have renounced rugged individualism. To this extent we already have state medicine.

"If this is 'Socialism and Communism—inciting to revolution,' even the 100 per cent. patriots need not be alarmed. For it has gained no votes for either the Socialist or the Communist party.

"Whether or not we shall have state medicine is the national debate proposition selected this year for the high schools and discussed by more than 50,000 students. It is largely an academic question. In point of fact, the scope of state medicine is increasing, but not so rapidly as the scope of private medicine administered by groups and paid for on a monthly fee basis. It is the old individual fee-for-service kind of practice that is losing ground. Those of us who are promoting group practice and group payment plans are doing far more than the organized medical profession to curb the growth of state medicine.

"Yet, in opposition to all plans proposed by laymen, the organized profession asserts that medicine has a right to control its own affairs. This is a naive conception of its place in the social order. No profession has any rights which are not conferred upon it by society. The county medical association which solemnly warns us that no government organization has any right to assume the responsibility for the prevention of disease merely makes itself ridiculous.



As a matter of fact, the medical profession is the only one that persists in such an untenable position. Railroads, insurance companies, bankers, public utilities, stock exchanges, contractors, engineers, lawyers all know that they can expect to be left alone, only in so far as leaving them alone conduces to the public welfare.

"Even with the present national income, the people of the United States are able to pay for adequate medical care. To be sure, once we contrive to make the flow of money to consumers keep pace with the flow of consumers' goods to market, we shall more than double our national income. But the present income is enough to provide good medical care for everybody. Thirty-six dollars a year per person would be enough, if we abolished the reducible wastes of present un-business-like methods.

"Already we are spending about \$30 a year per person. An increase of \$6, if the funds were spent to advantage, would meet all needs. This means that we could give 120 million people the benefits of the astounding advances which have been made during the past generation in medical science, if we spent for medical care, all told, merely as much money as we spent, in the darkest days of this depression, for trivial things."

Among the sincere points of truthful information with which Dr. Morris Fishbein replied to Foster must be connoted this, "Even the most ardent advocates for socialized medicine for the United States, including Rexford Tugwell and William T. Foster (Economist Foster), frankly admit that no system developed in other lands would be suitable for application to the American people; yet every plan proposed for application in America imitates in its set up some of the worst features of the foreign plans.

"In the typical setup recommended, the hospitals are to be the center of medical care. These hospitals are to employ a certain number of specialists and a certain number of general practitioners to take care of all of the people in the vicinity. It is presumed that patients will have opportunity to choose a doctor from the staff of the hospital to which they are assigned, or to which they may wish to go for treatment.

"The individual will find himself taxed a certain sum per year for his medical care whether he is sick or not, and the doctor will be paid either by the State or by the hospital for the

service which he renders. His advancement, then, will depend on his popularity among the patients, or on political prestige.

"Anyone who has studied the American political system will realize, however, the great danger involved in making political prestige the term for preferment in giving medical service.

"In that play called *Men in White*, Levine, a city doctor who has failed, says, 'A doctor shouldn't have to worry about money. That's one disease he's not trained to fight. It either corrupts him—or it destroys him.' And then he reflects: 'Well, maybe some day the State will take over medicine.' To this another doctor replies, 'Before we let the State control medicine we'd have to put every politician on the operating table and cut out his acquisitive instincts.'

"Today medicine throughout the United States is experimenting with new plans of organization to provide more and better medical care to more people at lower costs. Hundreds of plans have been developed whereby people voluntarily put aside a certain sum of money each month in order to pay the costs of hospital care should they need them. In New Orleans, for example, 30,000 people have voluntarily engaged in a hospital insurance plan which provides for free choice of doctor and hospital, and free determination by individuals as to whether they care to engage in the plan.

"Innumerable county medical societies throughout the United States have aided in the development of prepayment plans for both medical care and hospital care. These plans vary. For example, a type of medical care suitable to an industrial community, like that of Gary, Indiana, is hardly suitable for a completely rural area like the large plantations of the South or of the wheat fields of the West.

"Actually, the medical profession is approaching the demand for new organization of medical practice in the same way that a good doctor approaches his patient, first endeavoring to diagnose the condition and then, by the application of the available knowledge, to direct the treatment. It prefers, however, to use methods of treatment that have been tried on a small scale and found suitable, rather than to work out a new treatment for every case. It feels that experimentation under controlled conditions is the



right system for maladjustments of social organization just as it is for disease within the human body.

"Even with these changes, however, the average citizen who wants for the future the same high quality of medical service that he has had in the past, but more of it and at a lower cost, must realize that medicine today is not the same as the medicine of 1875. He must understand that the demands on the public purse of today for other features of living are far greater than they were in 1875, and must learn to arrange his budget in relationship to his certain needs.

"In the development of new plans, the individual must remember that any plan which will take from him his individuality, particularly in times of illness, or any plan which will remove from him the personal consideration which is fundamental to the best type of medical care is a dangerous plan, regardless of the cost he may pay for the service.

"Until that time comes when human beings have been standardized, these mass plans for medical care are sure to lower the quality of medical service, and medical care can be judged only on the basis of the quality of service rendered."

In the meantime Economist Foster continues in his task of trying "to free the science of medicine from the shackles of the business of medicine," duly financed and inspired by that big business that has placed economic shackles upon scientific medicine. The old patent medicine concerns never had better ballyhooers than do modern philanthropic foundations.

### HOSPITALS PROTEST AGAINST SABOTAGE OF SELF RELIANCE LONG ENDOWED BY MEDICINE

Hospitals have dropped at last into the class of injured and doubly taxed professionals in which for so long the laurel and the bay have been worn by the medical profession.

The yelp of pain as a result of the drop is heard loud and lusty in the columns of Dr. Otho F. Ball's erudite and sincere magazine, *"Modern Hospital."* What THE ILLINOIS MEDICAL JOURNAL has been crusading against for a quarter of a century is now being done for the hospitals through Dr. Ball and his magazine, in which appears a forceful article attributed to Dr. Glenn Frank. "The Sabotage of Self Reli-

ance" is the able phrase employed succinctly to describe the workings of all the socialistic schemes that debauch the self-respect of United States citizens, and destroy both American ideals and the working democracy.

"Government interference," reiterates Dr. Ball and his cohorts, "if continued much longer will wipe out a large number of so-called voluntary or independent charitable hospitals in this country. . . . Socialized medicine, state hospitalization while the net result of this transfer will not be the end of the matter. When hospitals and medicine are thus socialized in due course will follow socialization of all other independent social activities, with investment of billions of dollars of capital representing the personal sense of social responsibility upon the part of millions of donors. Voluntary research foundations, education and welfare relief and charity will be included, and, eventually even religious institutions will fall victims, when operated under similar conditions. . . . Growing political patronage will open the way to industrial socialism or some other form of fascism in America."

Further Dr. Ball points out that the article relative to this "Sabotage of Self Reliance" can be said to emphasize the fact that governmental hospitals perform necessary parallel functions with private hospitals when not used for more than intended purposes under American ideals. But warning must be uttered against any invasion of private interests beyond the limits of those ideals, although precedents have already been established, in government hospitals where patients are taken for pay, and government hospitals under political pressure are further competing with private hospitals by taking as free patients those able to pay for such services.

Functions of government hospitals include those of the indigent sick for whom state care must be given and war veterans to whom the government is under special obligation in addition to a few specialized groups, such as mental, tuberculous, and similar long time cases.

Further pressure on the private hospital, so Dr. Ball points out, results from demands that private hospitals increase their charity work while in some localities these same hospitals are actually being taxed for the support of an enlarged governmental hospitalization program.

Dr. Ball cited recent statements of Charles H. Schweppe, president of St. Luke's hospital and head of the Chicago Hospital Council, which point to taxation trends not only directly affecting voluntary support for private hospitals but also tending to snuff out all remaining sparks of social consciousness and responsibility. Such findings are amplified in the "sabotage" article which, Dr. Ball stated, was written by President Glenn Frank of the University of Wisconsin, a tax supported university. This article attacks the "sweeping transformation of functions from voluntary enterprise to state action."

"The drastic drop in the support of voluntary social institutions during the last six years," this article declares, "has been due to something more than the impact of the depression upon the incomes of men and women. It is, in part at least, the inevitable result of the wholesale substitution of public action for private action which has been a distinguishing mark of national policy since the Roosevelt forces came into power."

"The Sabotage of Self Reliance" in challenging the nature of this whole change, asserts that as victims of economic "shell shock" we were "credulous patients for any doctor with a plausible remedy."

"Put as briefly as I can state it," the article continues, "the balance between social power and state power is being profoundly altered. Public initiative is being substituted for private initiative in larger and larger areas of national enterprise. It means, in short, this: We are fostering a national psychology that looks to government as the George whom we shall let do it. It means an inevitable relaxation of any sense of social responsibility on the part of individuals and groups for other than the payment of increasingly drastic taxes. It means a nation of men and women who will, in the future, express their social consciousness by proxy through federal agents."

Dr. Frank disclaims spokesmanship for any vested interest, but points out that he speaks as a "servant of government, not unconcerned with endowment campaigns and in no wise dependent upon variation in the flow of private benefaction. Any permanent slump in support or any permanent shrinkage of the role in American life of private or voluntary institutions

would be a national calamity. The healthiest condition of both public and private institutions is to be found as a result of parallel competition.

"The case for the voluntary social institution," Dr. Frank declares, "may never get to court unless, as a people, we come to grips with an age old delusion, now suddenly revived in the name of liberalism, that there is some short cut to social greatness through overlordship of the state."

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### DISPENSARY SERVICE A DETER- RENT TO THE FUNCTIONING OF SCIENTIFIC MEDICINE

Dispensaries, labelled as a detriment to public health efficiency and the superlative functioning of scientific medicine, are coming under fire in numerous sections of the country.

Not the least of this is that section so sadly bitten by medico-socialistic-communism, the great and grand commonwealth of Michigan. There the Wayne County Medical Society has been up and doing to put salt on the tail of existing abuses in the dispensaries of Detroit, Mich., with such drastically shameful revelations that the survey committee of the society recommends to the public at large, such a change in system, method and functions as will save both taxpayers and voluntary contributors a sum estimated to total anywhere from fifty thousand dollars a year to possibly twice that amount.

Some fifteen queries probing dispensary service in Detroit are embodied in a questionnaire sent out in May, 1934, to members of the Wayne County Medical Society.

These arose from the feeling in that body that the treatment of indigent, ambulant patients and necessary medical treatment to the world's unfortunate, that are the inherent function of any dispensary or clinic were being sadly abused. The doctors were right. That is proven by tabulated results from this questionnaire. Dispensaries supported for aid of the worthy poor are the mecca of that variety of thieving citizenry known as "Chiselers." What is true in Detroit is true the United States over. A new generation of "charity parasites" is crowding out the worthy and meritorious poor. For this the paternalistic, over-trained welfare worker is largely responsible, next to the grafting politician.



"The best in the world is free, come and get it," is the slogan under which these half-baked, politically controlled jobbists labor. The welfare worker forgets completely the bill-payer. This is natural enough. Welfare workers pay for little. A welfare worker works for welfare: his or her own first, and the next lower ranking parasite next. Right in this group lies the nucleus of propaganda dissemination that dispensary service is free to anybody, to the rich as well as to the poverty stricken and to the destitute. Dispensaries as a rule are supported either by the taxpayers, by community levy or by private contribution. It is a shame that that which is assembled for the ailing mice of the world, should be devoured by the greedy rats.

The Wayne County Medical Society, sitting in council over the returns of its questionnaire, concluded that

1. Freehanded practice of poorly supervised and proteanly distributing dispensaries so destroys the responsibility of a large percentage of the population, that from the present situation of merely *accepting* free medical care that they will soon be on their way *demanding* such paternalism with

2. Food, clothing, shelter, and general maintenance next on their "Gimme" list as the entering wedge for complete sovietization of the United States and destruction of contemporary civilization, which, while faulty as it is, stands yet as the most perfect and democratic standard of existence as yet achieved by humanity.

Another interesting item in the analysis of this questionnaire results in the disclosure that clinic and dispensary work is a dead loss for the contributing physicians in private practice.

Social service investigation is an instrument which the practitioner of medicine has always used in his own office with private patients. The family doctor of old used social service, although his intimate knowledge of the status and background of every one of his townsmen permitted him to keep such confidential information in his mind and heart and not as a permanent file available for court records and public dissemination. In the dispensaries of the modern city, the physician's medical skill is the most valuable asset to the patient. In order to serve as many as possible in the time he can donate, the doctor loans his prerogative of social service in-

vestigation to paid assistants. Some social service departments have become so complicated and bureaucratic that they have departed from their original function of assisting the physician and through him the patient. Doctors serve in dispensaries "blindly," not knowing the important details of the patient's background and having nothing to say about his right to free service.

Lack of mutual sympathetic understanding between the dispensary physicians and the Boards of Managers of most of the agencies results from the absence of official contact. Generally speaking, the physicians feel that while they are being "used" by the dispensary executives they are being *refused* any voice in the manner in which they are to give their time and effort. As one Detroit physician put it: "If I want to give away my money, I should be the person who will dictate where that money is going; but if I want to give away my time (which is money) in a dispensary, I find myself the only person who has absolutely nothing to say about it. That's why I'm now dispensing my charity service in my office, and not in a so-called free clinic."

The Wayne County Medical Society's Survey Committee's report contends that the growing evils of dispensary practice with the attendant lessening of private work has a tendency to decrease the interest of high class young men to enter the practice of medicine. This threatens the quality of medical service in the near future.

The Committee stresses that the survey is based on the experience of Detroit physicians who have had years of daily contact with dispensaries. In offering recommendations for improvements, the medical profession emphasizes the *type of service* as the ideal to be reached, and not an accumulation of mere *hours of service* which pleases no one except the statisticians.

Changes recommended in the answers to the 15-point questionnaire may be summed up in the following seven items:

1. No physician giving service in a dispensary should be paid. A medical director to manage the dispensary may be compensated, but no other doctor of medicine. A dispensary is a charity and must be supported by charitable donations or by taxpayers; the physician gives his time and the philanthropist donates his money



to pay the salaries of the lay workers and the maintenance charges.

2. A law to regulate dispensaries, similar to the excellent New York law, should be enacted in Michigan. This would limit dispensary service to charity cases, and would set up legal penalties for chisellers.

3. Duplication and competition among dispensaries should be eliminated and costs to the taxpayers and voluntary contributors to the Community Fund, etc., should be cut down by the establishment of a Central Registration Bureau (similar in operation to the central bureau registering all welfare families as used by the Detroit Department of Public Welfare).

5. Thorough investigation of each applicant should be made by the admission clerk, who should be a tactful, well-trained individual, imbued with the enormity of the increasing cost of dispensary maintenance to taxpayers and philanthropists. The physician to whom the patient is assigned should receive the clinical and economic history of the case and from a study of same should decide whether or not free service should be given to the patient. All his rejections should go back to the dispensary subcommittee. The social service department should be conducted for the purpose of making certain that the physician's instructions are carried out, and for no other purpose. It should be under the direction of the dispensary subcommittee. So should the Medical Director.

6. To encourage more personal and sympathetic care, the many physicians who are willing to render free service to charity patients in their own offices should be allowed to use the dispensaries as referral stations for consultative purposes as well as for diagnostic aids (such as for radium treatments when the doctor does not own this expensive agent), with the patient always being sent back to the physician. This procedure would save thousands of dollars every year to those supporting dispensaries.

7. Admission clerks should refer all employed persons or people with means either to their family physicians or to the Medical Service Bureau of the W. C. M. S. which will work out a credit plan with each patient whereby he will secure necessary personalized, friendly service by a private doctor, at a price he can meet, with easy periodic payments. "No one

in Wayne County need go without adequate medical service," says the Committee's report, "if he will seek the aid of his family physician, or the Medical Service Bureau of the Wayne County Medical Society."

#### SUMMARY

Greater use of the Medical Service Bureau, creation of a central registration bureau, passage of a law regulating clinics, and utilization of the dispensary physician's knowledge regarding each patient's economic status, would save thousands of dollars each year, result in better distribution of service, and deal an effective blow to socialistic activities, states the Survey Committee. Pending these necessary changes, no new case should be accepted by a dispensary without a written request from a physician that free service be given that patient.

Clinic doctors donate. And that is that story! As a part of the ethical tradition of scientific medicine, at least half a million dollars per year in terms of scientific services rendered and medical skill is the voluntary contribution of Detroit doctors to clinics, medical centers and allied happy hunting fields for the resolute grafter and chiseler.

One of the faults and a glaring one in Detroit clinics is the lack of a clearing house of registration since each clinic is an independent unit. Duplication and re-duplication of service to a patient is a common cost.

This is another evil that has arisen with the decline of the old fashioned family doctor, to whom social service investigation, though he never called it that, for old Doc Sawbones was short on high-falutin' titles, was a private office instrument used with every patient.

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#### 1936 ANNUAL MEETING

The Eighty-Sixth Annual Meeting of the Illinois State Medical Society will be held in Springfield on May 19, 20, 21, 1936. The Sangamon County Medical Society has entertained the State Society at the annual meeting on so many occasions in recent years, the members are always assured that they will be welcome and be well entertained.

The Committee on Arrangements has been carefully selected and will work diligently until the meeting is over to do their part in making

the 1936 Annual Meeting a highly successful one.

The officers of each scientific section are working on their section programs to make them attractive and they will have an arrangement in their scientific programs this year which is different from that of previous years.

All meetings will be held in the Knights of Columbus Building and all exhibits, both technical and scientific will be shown in this same building. The Abraham Lincoln Hotel has been selected as the official hotel for the meeting, and the annual "stag" entertainment and the President's Dinner will also be scheduled for this hotel. The Committee on Arrangements will aid all members desiring hotel accommodations in making suitable reservations.

The Committee on Arrangements and the sub-committees are as follows:

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## MEDICAL ECONOMICS

Edited by the Committee on Medical Economics

of the

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Address all letters and communications to the Chairman.

Interest in the debates on the question "Resolved that the several states should enact legislation providing for a system of complete medical service available to all citizens at public expense," has been great. Universities, colleges and high schools have all accepted the question and are preparing, if they have not already completed the same, to argue both sides of the subject. Having listened to three different debates on the subject, two by college students and one by physicians and laymen, the writer is convinced that little real data is available to the average student, who is preparing for this debate. Many of the arguments presented are either weak or poorly prepared and in most cases one must conclude that the reason is lack of adequate information. The American Medical Association, as well as the different State Medical Societies, have prepared and assembled data on this subject and the same is ready for distribution. This distribution is up to the individual physician, who as soon as he hears that the topic is to be discussed in his local college or high school should immediately contact the instructor in charge of the debate as well as the debaters and offer to procure the necessary data, whereby all phases and sides of the subject can be studied. Failure to do this is an evidence of lack of interest in the future of medicine. Surely, organized medicine has nothing to fear by a fair, impartial and complete presentation of all of the arguments for and against State Medicine. In fact, it is an opportunity rarely presented to organized medicine to present to such a large group the facts about the need for a change in the method of practicing medicine, the methods in use in European countries, and the results as shown by the mortality and morbidity figures as well as the expense connected therewith, without satisfying either the recipients or the medical profession.

At the last meeting of the Council of the Illinois State Medical Society held at Springfield,

early in January, it was decided to simplify the dissemination of this information by the printing of a pamphlet on the subject. This has been done by several other State Medical Societies, and the Council hopes to include many of their best articles, augmented by others from the pen of men from Illinois. This work is now being done by the Committee on Education and we hope that it will be completed promptly so that the pamphlet will be available for distribution in time for use by those preparing to present the debate this Spring. Notice will be given in the ILLINOIS MEDICAL JOURNAL, either in this or some other column as soon as the same are available. Every practitioner must assume the responsibility in his local community of seeing that the information is available to the proper people at the proper time. This cannot be done by the officers of the Illinois State Medical Societies or the Council or any of its committees. The field is too large for any small group, regardless of how able and willing they are, to do all of the work, and as a result they must be helped by the local men. The Secretary of the Illinois State Medical Society, Dr. Harold Camp, Monmouth, Ill., and the Secretary of the Educational Committee, Miss Jean McArthur, 185 North Wabash Avenue, Chicago, will be more than glad to assist, in any way possible, the local men in the distribution of this information.

Interest in the subject of Group Hospitalization continues. The experiment is being tried out in increasing numbers of places, but as yet the time elapsed has been too brief to arrive at definite conclusions. One hospital in Chicago has started the plan to include only the members of the staff and the employes of the hospital. In a recent talk with a member of the staff, the writer received the impression that the plan was being accepted willingly and gladly by those eligible to it. New York, where the experiment is being carried on in a large way,

should have some report available in the near future. Certainly the plan does give to the insured some feeling of security as to ability to receive hospital treatment in the event of illness, to those who have entered the plan, and that seems very important. If the fear of extension to include medical care and gradual extension onward from that point could be eliminated, we feel sure that the plan would be much more popular with the medical profession. Until some of these uncertainties are cleared up, each and every thinking medical man should continue to watch the results of the plan where it is now in use, meanwhile talking with the laity to see what they are thinking of the plan and determining how great is their interest therein. If the plan is a success and not accompanied by danger to the future of medicine, surely the medical profession should be the first to endorse the same.

As announced in the last issue of the *ILLINOIS MEDICAL JOURNAL*, the annual meeting of the Northwest Regional Conference will be held in the Red Lacquer Room of the Palmer House in Chicago on Sunday, February 16. This is the first time that the meeting of this, the best, meeting on the subject of Medical Economics, has been held outside of Minnesota. At the last annual meeting it was decided, in view of the great interest in the subject and the increasingly large attendance from the Midwest as well as the Northwest, to hold the years meeting in Chicago, so that the men from this part of the country could attend. At the last meeting of the Council, an invitation was presented for all the officers of the Illinois State Medical Society and the officers of the Component County Societies to attend. This offer was accepted and the President and Secretary of all the County Societies of Illinois have received an invitation. We hope that there will be a large attendance. Any and all members of organized medicine are welcome, regardless of whether or not they received a personal invitation. It was impossible to send a personal invitation to all members of the Society. There will be plenty of room and we feel that a man will be well repaid for the time spent attending the meeting. The program is of the nature of a symposium on four of the principal topics of economics interest, each presented by a man, who is an authority on the subject. Each paper limited to twenty minutes,

will be followed by discussion for ten minutes, by two previously selected men, after which there will be general discussion. A complete program of the meeting will follow this article and it is to be hoped that it will prove sufficiently interesting to bring out a large crowd. Requests for programs have come from many distant states, including South Carolina, from where we are assured one visitor.

The column this month is without the second article, which is usually presented. This is due to circumstances over which we have no control and we hope to be back on schedule next month.

E. S. HAMILTON,

Chairman, Committee on Medical Economics.

#### NORTHWEST REGIONAL CONFERENCE

Red Lacquer Room, Palmer House, Chicago

*Sunday, February 16, 1936.*

8:30 A. M.—Breakfast. (Red Lacquer Room.)

9:30 A. M.—Registration.

10:00 A. M.—Morning Session.

1. "The Social Security Act and Its Relation to the Medical Profession."

T. V. McDavitt, American Medical Association, Chicago.

Discussion opened by A. D. McCannel, M. D., Minot, North Dakota, and Chas. B. Reed, M. D., Chicago.

2. "Reciprocal Relations Between State Medical Societies."

Harold M. Camp, M. D., Monmouth, Illinois.

Discussion opened by A. S. Rider, M. D., Flandreau, South Dakota, and F. S. Crockett, M. D., Lafayette, Ind.

12:30 P. M.—Luncheon (with the compliments of the Illinois State Medical Society).

President's Address.

Oliver J. Fay, M. D., Des Moines, Iowa.

Election of Officers for 1937.

Selection of meeting place for next annual meeting.

Introduction of guests.

2:00 P. M.—Afternoon Session.

1. "Standardization of the Activities of the Committees on Medical Economics of the Mid-West and North-West."

F. L. Loveland, M. D., Topeka, Kansas.

Discussion opened by E. A. Meyerding, M. D., St. Paul, Minnesota, and W. H. Marshall, M. D., Flint, Michigan.

2. "Interprofessional Relations in the County."

Fred Moore, M. D., Des Moines, Iowa.

Discussion opened by L. M. Larson, M. D., Bismarck, North Dakota, and J. H. Hayes, M. D., Minneapolis, Minnesota.

Papers will be limited to twenty minutes each, and discussions to ten minutes; at the completion of same, papers will be open for general discussion.

Kindly address any inquiry to the Secretary, E. S. Hamilton, M. D., Kankakee, Illinois.



## THE LAST WORD IN A VITAMIN CHART

Dr. Robert Jordan Fraser's (179 W. Washington St., Chicago) Vitamin Chart fills ably an urgent need for every practitioner of medicine who has found it difficult to keep in step with the tremendous strides in the study of vitaminology. This chart is at once an instructor and a competent "ready reference." In size it is convenient as in content it is competent, measuring 30 to 38 inches, while its price of \$2.00 is remarkably low. Almost at a glance the possessor of this chart can survey the abridgement of the findings of some 350 international authorities, experimenters, laboratory workers and scientific commentators and writers. There is a bibliography with approximately 1,350 references. Source material was furnished by hundreds of legitimate ethical scientific books dealing with vitamins and various issues from all over the world of some 95 journals dealing officially with medicine, pathology, biochemistry, or nutrition. Arrangement of the chart is original. Classification has been made to effect rapid and easy cross referencing. Material has been divided into four general sections, i. e.,

1. Normal influences of vitamins.
2. Vitamin deficiency symptoms and syndromes.
3. Foods and the various vitamins each contains with additional facts relative to such foods.
4. A general section on vitamins dealing with vitamin requirements, storage, solubilities, conservation, destructive factors and other analytical elements.

More specific subdivisions are classified as to vitamin influences upon the nervous, the vascular, the blood and the sexual systems, and the digestive and the respiratory tracts and the bones and teeth.

Hence any physician by a quick reference to this chart can secure almost at a glance the vitamin data and its connection with any of his current cases without tedious and exacting hours of laborious comparison and research. Technical, experimental and clinical data in enormous amount and extensive scope were thoroughly gleaned for this chart and its practical data. The chart is almost invaluable. In the near future vitaminology and vitamin therapy will be uni-

versally recognized as one of the foremost forms of constructive therapy, and will displace many types of therapeutics now in common usage.

The vitamins belong in a category of super-potent, highly complex, chemical substances, as do the hormones and the enzymes.

Quoting from the official Imperial organ of the medical societies of Great Britain, the astute "*Lancet*" for 1934, vol. 54, p. 347—"We are probably too prone to think of vitamin deficiencies in terms of definite deficiency diseases, as Scurvy, Beri Beri, Pellagra and Polynuritis, —as a matter of fact, the overwhelming majority of cases are of mild grade and do not reach the severe degree of deficiency necessary to produce these classical diseases; the individuals being affected, in most instances, only to the extent of some impairment of 'well being'—and poorly defined states of ill health. A majority of our common diseases and ailments, if not due directly to vitamin deficiencies, are superimposed on pathological changes which are the direct result of vitamin deficiencies."

This chart has received the approval and commendation from those leading vitamin authorities in this country, who have had the opportunity of inspecting it.

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### Harry Eugene Kelly—In Memoriam

WHEREAS, Mr. Harry Eugene Kelly has been taken by death, and

WHEREAS, for eighteen years, Mr. Kelly has been the valiant and dependable friend of the medical profession, not only in the competent construction of the Medical Practice Act in 1923 and in its successful defense through the years, but in every other emergency where legal experience and acumen were demanded, and

WHEREAS, the medical men of the entire State warmly appreciate his unstinted devotion and deeply deplore the untimely departure of this courteous friend, this honest counsellor and resourceful lawyer, and

*Therefore, be it resolved*, by the physicians of the State of Illinois, that they express through their official representatives their profound sense of personal loss and their heartfelt sympathy with the afflicted household, and

*Be it further resolved*, that copies of this resolution be spread upon the minutes of the



State and county Societies and sent to the bereaved family.

By the Committee:

John R. Neal

Charles B. Reed

Charles E. Humiston, Chairman.

## EDUCATIONAL COMMITTEE

### *January Activities*

The Educational Committee sent letters to the principals of 658 schools in Illinois asking if the debating societies were to take up the subject of socialized medicine; if so, offering to send them material. During the month of January the Committee furnished material to debating teams in the high schools of the following cities:

Augusta	Galva	Plymouth
Ashley	Galesburg	Pinckneyville
Athensville	Galena	Palmyra
Armstrong	Greenville	Paris
Bowen	Jacksonville	Princeton
Bunker Hill	Kewanee	Pittsfield
Belleville	Kankakee	Rossville
Bismarck	Leland	Riverside
Brookport	La Grange	Rochelle
Coal City	Long Point	Rutland
Chesterfield	Mt. Carmel	Rockford
Charleston	Morris	Robinson
Catlin	Monroe Center	St. Charles
Carlyle	Mt. Olive	Sesser
Chadwick	Moline	Shelbyville
Carthage	Mattoon	Scottsville
Chebanse	Melvin	Sheffield
Dupo	Morton	Stockton
Downers Grove	Medicine Lodge,	Thomson
Dwight	Kansas	Victoria
Danville	Nebo	Vandalia
Effingham	Newton	Westfield
Elgin	Naperville	Wheaton
Eldorado	New Athens	West Frankfort
Farina	Olney	Westville
Freeport	Park Ridge	Winchester
Franklin	Pontiac	Waterloo

Secretaries or presidents of county medical societies in which these cities are located were notified that the request had come for material and suggesting that someone communicate with the debate coach or the person in charge of the debate.

This service has proved very successful and appreciated as indicated by a letter received from one secretary—"I have your announcement of the impending debate on 'State Medicine' to be held in one of our high schools, and in accordance with your suggestion I telephoned to the debating coach this afternoon. He has taken sufficient interest in the matter to come to my office tomorrow for an interview on the contemplated debate, and I shall use whatever tact and influence I have to get the proper facts before him and the debating audience."

## RADIO:

Twenty-four radio talks were given over four Chicago stations. The following Chicago physicians prepared and gave the programs:

Cassie B. Rose—"X-Ray and Health."

Arthur W. Stillians—"Uses of Silver."

Arthur A. Halevy—"Do You Have the Art of Living?"

Leon Unger—"When a Child Coughs and Wheezes."

Albert H. Andrews, Jr.—"The Common Cold."

Edmund Jacobson—"The Nervous Patient."

Robert M. Jones—"Why Starve a Fever."

William H. Rose—"Pneumonia."

Anthony Reymont—"Worry and Health."

H. R. Fishback—"The Hospital Laboratory."

James J. Callahan—"Winter Accidents."

S. I. Kaufmann—"Defective Vision."

Samuel Narrod—"Childhood Tuberculosis."

George S. Livingston—"The Hard of Hearing Child."

Guy Cushing—"Speaking of Your Operation."

S. S. Snider—"Contagious Diseases."

Alex E. Walker—"Your Digestive System."

Allan Harvey Ferguson—"Progress in Obstetrics."

William J. Pickett—"Goiter."

Frank G. Murphy—"Pose, Poise and Posture."

Edward W. Hollingsworth—"Common Symptoms of Heart Disease."

Walter R. Fischer—"Why the Doctor in Foot Troubles?"

Roger T. Farley—"Arthritis."

Joseph M. Blake—"Hernia."

## SCIENTIFIC SERVICE

13 Scientific programs were arranged for the following county medical societies:

Scott County, Iowa

Will-Grundy

Iroquois

DeKalb

Whiteside

Carroll

Christian

## SPEAKER'S BUREAU

50 Popular health programs were arranged for lay meetings. The reports on some of these talks are very interesting and indicate that doctors are able to present their material to the laity.

"Very worthwhile. Excellent delivery for laymen as he speaks in terms all can understand."

"Presented in an interesting and understandable manner. Much discussion aroused and audience was awakened to the need of more attention to this phase of health."

"Doctor H.'s talk was a success. Our members liked the psychological phase of it. He is a delightful and forceful speaker. Many thanks."

"We were all very much pleased with the manner in which she presented her subject and hope to have the opportunity to hear her again."

"The men kept the doctor talking for almost two hours and then insisted upon informal discussion with him for another half hour."

## PRESS SERVICE

- 20 Health articles, regular service.
- 483 Health articles to downstate newspapers.
- 78 Health articles to Chicago and suburban papers.
- 62 Releases for LaSalle County Medical Society meeting.
- 51 Releases for Whiteside County Medical Society meeting.
- 49 Releases for Bureau County Medical Society meeting.
- 32 Releases for Perry County Medical Society meeting.
- 27 Releases for Jefferson-Hamilton County Medical meeting.
- 41 Releases to papers announcing meetings of Chicago Medical Society.
- 5 Releases about Calumet Branch meeting.
- 5 Releases about Englewood Branch meeting.
- 4 Releases about North Shore Branch meeting.

Press articles were approved on the following subjects:

Worry or Health	Dick Test
Sick Headache	Cereals
Fibbing	Teething—2 Articles
Diphtheria	Fourth of July Accidents
Hours of Rest	Dysentery
Bronchial Asthma	Teaching the Baby to Drink From a Glass

## LIBRARIES

- 528 Health articles to libraries in Chicago and Downstate.

## SPECIAL SERVICE TO COUNTY MEDICAL SOCIETIES

- 351 Card notices for LaSalle County.
- 250 Card notices for Whiteside County
- 164 Card notices for Bureau County.
- 139 Card notices for Perry County.
- 192 Card notices for Jefferson-Hamilton County.

## MISCELLANEOUS

During the month of January, the Committee furnished material to the Arkansas State Medical Society. That Society requested the Committee to be put on the mailing list to receive the material sent to Illinois newspapers.

Jean McArthur, Secretary.

## ANNUAL MEETING OF THE AMERICAN COLLEGE OF SURGEONS

The American College of Surgeons will hold its Sectional Meeting for the States of Illinois, Virginia, Tennessee, Missouri, Indiana, Ohio, West Virginia and Kentucky, in Louisville, Kentucky, on March 19-20-21, next.

Clinics will be held at the local hospitals. Special programs by leading surgeons and hospital authorities will be held at the Brown Hotel, which will be headquarters. The banquet will be on Thursday evening and a public session will be held at the Municipal Auditorium on Friday evening.

The profession of Louisville and of Kentucky ex-

tends a cordial invitation to the physicians of Illinois to be present and to help make this session a success.

A. T. McCORMACK, M. D., *Secretary*,  
532 Main St., Louisville, Ky.

## MEETING OF AMERICAN CONGRESS OF PHYSICAL THERAPY

The American Congress of Physical Therapy wishes to announce its Mid-Western Sectional Meeting to be held at the Mayo Clinic, March 4, and 5, 1936.

March 4th will be devoted to clinical papers; the session will open in Plummer Hall at 9 A. M., Dr. Frank Krusen presiding. Dr. Charles W. Mayo will deliver the address of welcome. The following speakers will present interesting papers, as follows:

The Use of Physical Agents in the Treatment of Circulatory Diseases. N. W. Barker, M. D., Rochester, Minnesota.

Studies in Tissue Heating with Short Wave Diathermy. John S. Coulter, M.D., Chicago, Illinois, and Howard A. Carter, B. S. in M. E., Chicago, Illinois.

Temperature Changes Produced in Various Tissues of Animals by High Frequency Electrical Fields. Charles Sheard, Ph.D., Rochester, Minnesota.

The Scope of Physical Therapy in Dermatology. Cleveland White, M. D., Chicago, Illinois.

Fever Therapy. A. U. Desjardins, M. D., Rochester, Minnesota.

Newer Aspects of Ionization Therapy in Perennial Nasal Allergic Disorders. A. R. Hollender, M. D., Chicago, Illinois.

Physical Therapy in Relation to Orthopedics. M. S. Henderson, M. D., Rochester, Minnesota.

Influence of Short Wave Diathermy on the Blood. Disraeli Kobak, M. D., Chicago, Illinois.

Pathologic Aspects of Arthritis. Ralph K. Ghormley, M. D., Rochester, Minnesota.

Recent Progress in the Study and Treatment of Arthritis. P. S. Hench, M. D., and C. H. Slocumb, M. C., Rochester, Minnesota.

Physical Therapeutics Management of Arthritis. Frank H. Krusen, M. D., Rochester, Minnesota.

On Thursday, March 5, Clinics have been arranged as follows:

8 to 10 A. M. Clinic on Fever Therapy. St. Mary's Hospital, Fever Therapy Department. Walter C. Popp, M. D., Rochester, Minnesota.

10 to 11 A. M. Clinic on Relation of Posture to Low Back Pain (Corrective Procedures). Physical Therapy Section—Museum Bldg. E. W. Secord, M.D., Rochester, Minnesota.

11 to 12 A. M. Clinic on General Physical Therapy. Physical Therapy Section—Museum Bldg. Frank H. Krusen, M. D., Rochester, Minnesota.

## WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

The Board of Directors of the Woman's Auxiliary to the Illinois State Medical Society met in the Palmer House, Chicago, January 25, 1936.

Despite the extreme cold, twenty members were pres-

ent, giving interesting reports on the various phases of the Auxiliary's work.

The Public Relations report revealed many different avenues of approach in advancing health education. Many auxiliaries have contacted high schools in their respective communities, offering assistance in securing material for the use of students representing the negative side of the debate question, "Resolved, that the several states should enact legislation providing for a system of complete medical service available to all citizens at public expense."

It was a privilege and pleasure to have with us for part of the meeting Mrs. Rogers N. Herbert, Nashville, Tennessee, and Mrs. Robert Fitzgerald, Wauwatosa, Wisconsin, president and president-elect of the Woman's Auxiliary to the American Medical Association. Mrs. Herbert spoke to the group during the afternoon session on "The Type of Leadership Needed for Our Auxiliaries."

Mrs. W. D. Chapman, President.

### A WARNING

The Tilden Company just issued a Warning in the Drug Trade News which circulates to Manufacturers, Wholesalers and Retailers that any infringement of their Trade-Mark *Danish Ointment* will be prosecuted.

The Tilden Company has used the name since 1924 and put up the formula approved by authorities. It is intended that physicians shall get true *Danish Ointment* when they write prescriptions for it since this is a most thoroughly effective and harmless ointment in the treatment of Scabies and Itch based on the original formula.

Any interested parties are urged to report to The Tilden Company, New Lebanon, N. Y., or St. Louis, Mo., any infringement by others of the Trade-Mark *Danish Ointment* and such information will be acknowledged suitably.

### Miscellany

#### PATHOLOGY AND PRACTICE

George Blumer, New Haven, Conn. (*Journal A. M. A.*, Oct. 26, 1935), discusses the importance to the clinician of a sound training in pathology, a doctrine which, in view of the antiquity of recorded medicine, is not such a very old one. He believes that the fields of pathology whose cultivation is most essential to the development of the clinician are morbid anatomy and histology. A study of these subjects makes for precision in diagnosis. Pathology, like diagnosis, is based on observation and induction, and it is clear that for this reason it is a preliminary training in method. It gives the student a much wider point of view of disease than is usually obtained in practice. Pathology gives an insight into disease as a whole and a clinician with a good pathologic training tends, as a result, to visualize what is going on in the entire body. Such visualization, based as it is on accurately observed facts, protects the clinician from the very human tendency to theorize and speculate on insufficient data, which has been such a

prominent feature of medicine at certain periods, notably the eighteenth century. The value of morbid anatomy and histology as methods of checking the accuracy of diagnosis and showing the clinician his mistakes need be mentioned only in order to point out the necessity of encouraging their use to the fullest extent.

### HEMOCHROMATOSIS

John P. Creed, Haverhill, Mass. (*Journal A. M. A.*, Oct. 12, 1935), describes a case of early hemochromatosis and that has some unusual features. First of all, the patient was acutely ill on admission, sufficiently so to have a diagnosis of intestinal obstruction made. Then the cirrhosis was in an early stage before the development of ascites, there was no evidence of diabetes, and, lastly, there was no marked pigmentation of the skin, although there were some pigmented areas over the backs of the hands and over the tibias. These areas and the skin in general were not striking enough to be considered unusual in a man of his age (65). The patient has been followed for almost four months since his discharge from the hospital. His digestion has been good and there is no evidence as yet of increased pigmentation of the skin, glycosuria or fluid in the peritoneal cavity. His condition will be followed further. The existing literature on this subject has been reviewed and the essential points have been included and summarized as accurately as possible.

### SHOULD HETEROPHILE ANTIBODY BE USED IN TREATMENT OF PNEUMOCOCCIC PNEUMONIA?

In order to shed some light directly on the relationship of heterophile antibody to the course of lobar pneumonia in man, Maxwell Finland, Boston; James M. Ruegsegger, Durham, N. C., and Lloyd D. Felton, Baltimore (*Journal A. M. A.*, Oct. 12, 1935), studied the content of sheep cell hemolysin in the serums of 120 patients with pneumococcic pneumonia, including twenty-four who were treated with concentrated antibody from antipneumococcus horse serum. The serums of subjects immunized with potent pneumococcus antigenic fractions and of normal controls were tested for comparison. A total of 671 serums were examined. On the basis of their observations the authors conclude that heterophile antibody has no relationship to the course or outcome in human cases of pneumococcic pneumonia. Their data failed to show that pneumococci, when active in causing pneumonia in man, exhibit the characteristics of heterophile antigen.

### ANALYSIS OF APPARENT INCREASE IN HEART DISEASES

Alfred E. Cohn, New York. (*Journal A. M. A.*, Nov. 2, 1935), demonstrates, by a set of curves, the net increase in circulatory diseases after the age of 60. The figures given describe the condition in the U. S. registration area of 1900. They may be representative of the country as a whole, but, seeing how closely diseases of all sorts are dependent on the environment, the climate in the West and South may actually require



a different description of the course of cardiac disease for these states. Beginning with the age of 40 there has been a rise in the death rate from chronic cardiac diseases, decade by decade, from 1900 to 1930. From his study the author infers that there has been a rise, but only a slight one, in the death rate from circulatory diseases. The rise is due apparently to savings from deaths resulting from infectious diseases in the very decades in which the slight rise in the circulatory disease has occurred.

### THE HEART IN HYPERTENSION

George Fahr, Minneapolis (*Journal A. M. A.*, Nov. 2, 1935), points out that 55 per cent of the appalling death rate consequent to essential hypertension is due to heart failure. Moreover, heart failure of some degree is nearly always present in cases of essential hypertension in which death occurs in uremia or from apoplexy or cerebral softening. The heart in hypertension shows left ventricular hypertrophy and dilatation with varying grades of replacement scarring in the muscle. There is some coronary arteriosclerosis present in 90 per cent of the cases. The coronary narrowing is responsible for the scars found in the heart muscle. A very high percentage of patients with angina pectoris and coronary arteriosclerosis have high blood pressure complicating the cardiac picture. Hypertension and coronary arteriosclerosis are so intimately and frequently associated that they should be considered together and the term "hypertensive heart disease" or "hypertension heart" should connote coronary involvement. What has been termed "chronic myocarditis" is usually the result of high blood pressure and coronary artery disease and not the result of infection. Heart failure in the clinical sense does not develop in hypertension until many years (from ten to twelve) have passed unless the coronary disease accompanying the high blood pressure becomes very severe or unless some other cardiac complication is present. Many patients with hypertension live fifteen years or more and finally die of one of the other consequences of hypertension, though some degree of heart failure may have been present previously or at the time of death.

### THE PHYSICAL CHARACTERISTICS OF DIATHERMY AND SHORT WAVE DIATHERMY MACHINES

In their discussion of the two types of diathermy machines that are used at the present time to produce high frequency electric current which will pass through the tissues producing heat but no neuromuscular stimulation, Allan Hemingway and K. W. Stenstrom, Minneapolis (*Journal A. M. A.*, Nov. 2, 1935), refer to them as the spark gap diathermy machine and the vacuum tube diathermy machine. They assert that the newer method of heat therapy, namely, the short wave diathermy, is at present in an experimental stage. Much valuable research has been done to clarify the problems involved; at the same time there are in the literature some very confusing and misleading statements in regard to the merits of this form of therapy. For a good critical discussion they would recommend the recent article

by Mortimer and Osborne. In particular, they would recommend that, owing to the lack of knowledge on many phases of this work and the indications of dangerous possibilities, the newer machines be used with the utmost caution. On the other hand, conventional diathermy is an old-established form of therapy about which much is known that has proved to be of definite clinical value.

### CLINICAL EXPERIENCE WITH PROTAMINE INSULINATE

Howard F. Root, Priscilla White, Alexander Marble and Elmer H. Stotz, Boston (*Journal A. M. A.*, Jan. 18, 1936), state that preliminary observations in fifteen cases have in general confirmed the observations of Hagedorn and his associates regarding the protamine insulinate that has been developed in their laboratories. Presumably by slow breakdown of the compound in the subcutaneous tissues, a blood sugar lowering action is secured which is even and more prolonged than that which follows regular insulin. Because of this, wide fluctuations in blood sugar level are less apt to occur and hypoglycemic reactions can be largely avoided. The new preparations is still in the experimental stage. Further work both in insulin laboratories and in diabetic clinics will be necessary to determine when, how, and in which patients protamine insulinate or some related compound can be best used. With the prospect bright of maintaining the level of the blood sugar within normal limits throughout the twenty-four hours, it would appear as if a new revolution in the treatment of diabetes must follow and the possibility created for the diabetic patient to resemble more closely a normal individual.

### POLIOMYELITIS FOLLOWING VACCINATION AGAINST THIS DISEASE

According to J. P. Leake, Washington, D. C. (*Journal A. M. A.*, Dec. 28, 1935), through those responsible for the production of poliomyelitis vaccines, through several health officers and through others, word has come to the United States Public Health Service of the development, at suggestive intervals following subcutaneous and intracutaneous injections of treated poliomyelitis virus, of twelve cases of paralytic poliomyelitis with high fatality. The facts in each case are reported. Paralytic poliomyelitis was not epidemic in any of the localities at the time of the occurrence of these cases if these cases themselves are not included in the count. The author believes that to many physicians this series of cases, following by intervals of from six to fourteen days the injection of one or the other of two different vaccines, renders undesirable the further use of poliomyelitis virus for human vaccination at present. In every case in which the sequence is known, the level of the spinal cord first affected corresponded to the extremity in which the injection was made, paralysis beginning either in the same limb or in the contralateral limb. Although any one of these cases may have been entirely unconnected with the vaccine, the implication of the series as a whole is clear.

## Original Articles

### IN MEMORIAM

CHARLES B. REED, M. D.

CHICAGO

Friends and Fellows of the Society:—

We are gathered here today to honor the memory of comrades and colleagues whose ineluctable departure we deplore. They belonged to our professional family and worked at our side. The casualty list is long and our loss is severe not only in numbers but in personal ties and associations.

Our relationship to these men differed materially in time, place, duration and intimacy for they joined us on divers occasions and under dissimilar conditions. Some had reached the wisdom of three score years and ten while others were still fighting for their youthful ideals. Their achievements, too, were in no way uniform for the Reaper has no consideration for human hopes and expectations. His decisions are ruthless.

Our comrades came to us from various kindreds and from various states in America and elsewhere and in consequence their lives were modified and disciplined by many different circumstances. As they grew and expanded mentally they shared in and cherished probably all the dreams that stir and fascinate the imagination of youth. But youth travels on nimble feet and these dreams may or may not have been fulfilled. Dreams however beget ambition and inspire wisdom, hence, lured by the extraordinary interests of science in its human applications these men studied medicine. Their professional activities have been spread before the public and what each of them has accomplished, his friends know, appreciate and applaud, for their vocation was familiar and manifest to the eyes of society.

The rest we cannot learn. We cannot penetrate the sealed arcana of their inner lives, of the hopes and fears, of the dreams and visions of ultimate attainment. We have the dates of birth into the world and of the fateful termination. But what a host of psychic adventures must have occurred in that strange progressive interval wherein birth is naught but an introduc-

tion to Raleigh's "eloquent, just, and mighty Death, whom none could advise."

Such psychic experiences however are of necessity esoteric for who can trace the mute gropings of the primitive soul as it struggles up from oviparous inception to a well rounded maturity? Who can witness the painful moments of indecision, solve the mysteries of anxious solitudes, or the ardent longings of those wakeful nights which each alone could know? How few indeed are the men who can themselves recall the guide posts of their mental and emotional progress?

Were our colleagues born in the North or the South, in the East or the West? Wherever the place, whatever the season, or how variable the day, they died *here* in obedience to a blind, formless, insensitive Fate. They left dream castles unfinished, ambitions unsatisfied, and hearts desolate. The ebb and flow of the seasons, the zeal for professional excellence, the vicissitudes of good and evil, affect them no more. As a modern orator remarked, in self consolation, "Whether it be near a friendly shore, or in mid-ocean, on a peaceful sea, or among storm-tossed breakers, a wreck must mark the end at last." To meet and endure these human sacrifices requires the utmost endowment in philosophy, fortitude and religious faith among the families and friends of those untimely taken away. David's anguished words forever voice the riven heart, "O Absalom, my son, my son, Absalom."

Many of our friends were born in this state where the myriad souls of wheat and corn are garnered to gratify man. They were born where brooks and rivers run calmly or impetuously through broad, fertile acres; where buttercups and daisies glow like stars on a firmament of green; where crystal lakes divide the forests, and summer breezes, laden with the perfume of fragrant blossoms, wimple the water, bend the fields of grain and carry in every direction the felicitous songs of birds. It was a region they learned to love with an intensity that gathered strength with their growth.

We must assume that when their purposes became hardened and defined, our comrades left these congenial scenes reluctantly, drawn by the magnetism of the city; drawn by that chant of battle where the fermenting energies of mankind wage constant war in an effort to win, to hold, or to improve the fruits of civilization. For



medical men are not content with mere animal satisfactions. They begin and pursue their careers in the belief that life as a business is the servant of character and the tyrant only of ignorance, pretense and shams. As they believed so they labored, and brought forth priceless brain children for the benefit of humanity. In this conviction they lived and strove and loved but, ready or otherwise, they *fell*, amid the toils and tumult of a never ceasing conflict. Their reasoning minds met with unreasoning foes and they left us to become comrades in God. Thus ever we strive and strain in unremitting quest of a fancied good. We build as strenuously as the coral insect, and like him we disappear content if we have left some minute constructive atom in the world and, more happily, an unfading remembrance in the heart of a friend.

In the first twenty years of life, one saps strength and vitality from his environment but adversity attends existence like a monitor to test our manhood and verify the fulfillment of our birthright. It is Nature's law which is imposed without the slightest feeling or concern. A soul sets forth with high ambitions, immortal yearnings. Every energy is devoted to their attainment. The man may win, but in the moment of victory Death, the universal enemy, stays his hand. He may fail, yet he, as well as Browning might say, "What I aspired to be and am not, comforts me." The fruits of his adventure, however, are not lost for it is the conception and the experiment that gives joy rather than the solution.

We live in the present. In this everlasting NOW we breathe and have our being. What the future may contain is only speculation. The future is fairyland as visioned by youth, but maturity goes out to meet the doubtful shadows with the eye of a hunter but also with the resolute heart of the quarry who is conscious of an unavoidable defeat.

Omar, the Persian poet of eight hundred years ago, has fitly described our ignorance and our helplessness amid the immutable Fates who scan and judge and slay:

"We are no other than a moving row  
Of Magic Shadow-Shapes that come and go  
Round this Sun-illumined Lantern held  
In Midnight by the Master of the Show;

Impotent Pieces of the Game He plays  
Upon this Checker-Board of Nights and Days;  
Hither and thither moves, and checks and slays  
And one by one back in the Closet lays.

The Ball no question makes of Ayes and Noes  
But Right or Left as strikes the Player, goes;  
And He that toss'd you down into the Field  
He knows about it all—He knows! *He knows!*"

But I don't. I do not know. Nor did our friends know. If I have measured the medical character aright, the larger number of our colleagues looked upon the social phenomena and beliefs of the age more or less abstractly. They felt that the major problems of this world and the next would be managed by an indefinite band of shadowy officials who were probably delegated to attend upon such matters without their individual aid.

Their own vocation, more intimate and precise, involved a career of highest civic duty marked by color and change, by hardship, responsibility and intense application. They lightened the burdens of mind-weary mates and cheered the dubious heart of the infirm by wise philosophy. They relieved the suffering body, pointed the pathway to safety among the snares and pitfalls of an ever hazardous existence and postponed or averted when possible the inevitably tragic end. They took on no personal quarrel with life or Fate but seemed to accept defeat or victory with the equanimity and fortitude of the Happy Warrior who is invincible in soul. Thus their characters were cast in the true medical mold; a state marked by the inner serenity that comes from self control and the animated moderation that dwells with wisdom.

Some of these comrades may not have lived in the atmosphere of a medieval creed. Their spirits may not have felt any tingling response to supernatural revelations and so in some respects they were outside the pale of those who have this consolation. But were they not thereby enrolled among Shock Troops; among those who conducted themselves as excellent citizens according to their own convictions without fear of future penalty or hope of ultimate reward? Is not that character just as worthy which reaches its supreme development without ceremonial support or ritualistic stimulation? A morality



which finds expression in the warm hand clasp, in words of cheer to the discouraged brother, in quiet deeds of helpfulness and of friendship—that most comforting flower that blooms along the rough highways and beside the sodden quagmires of life; the friendship which carries light, relief and happiness to every fellow traveler.

God did not pour all his sunshine into corn, and fruit and flowers. He scattered the rays of His countenance prodigally over the universe. Are they wasted? Is this radiance lost in the immensities of space?

God paints opalescent pictures of mirage above the palpitating heat of the desert and sprinkles sunbeams like diamonds over the bosoms of lakes which bedeck the verdant garb of Nature. He drapes shimmering webs of aurora about the cold shoulders of the Poles and lights the lanterns of the Great Bear as he prowls in ceaseless vigilance around the Northern Star. He spangles the canopy of night with the quivering sparks of the Milky Way and with the giant suns of the Pleiades. He silvers the landscape with beams reflected from Cynthia's inconstant face and draws the crimson cincture of the west across the sleeping glooms of the sun.

The Daughter of Dawn rises silently from her dark boudoir, climbs the steps of the Orient and flings wide the Gates of Morning. On soundless wings she speeds exultant over the vast terrene and wakens the birds to herald with ecstatic voice the coming of her King who floods the world with refulgent gold; a magnetic splendor to which every plant and animal clan turns in warm and happy gratitude for revival, refreshment and repair.

No ray of light is wasted, nor a single sunbeam lost, but all contribute to the welfare and happiness of earth-born life. So with mankind anyone, who by the use of treasure, knowledge, or personality is able to smooth one wrinkle from the brow of care, or change one moan or sob into blithesome song; who can wipe away one tear and in its place put a shining jewel of joy—such a man is a human benefactor and such were our friends and colleagues who have passed on into the fathomless silence. They sided with the weak, and with willing hands gave aid to the sick and despondent. With loyal hearts and firm souls they quietly performed their protective and

merciful missions and discharged faithfully every public and private trust. We can bestow no greater praise than this.

We come again into the presence of the Great Mystery. We *know* nothing about it. We have our hope, our faith but no certain key to its solution.

Life is but a narrow vale between two measureless eternities which philosophers and seers have labored to explore and define ever since the tremulous dawn of reason, but these efforts in a physical sense have always failed. With much less promise can the present speaker venture to question or deny the existence or the non-existence of these enigmatic profundities, for he makes no claim to extra mundane curiosity, to ministerial dialectics, or to sacerdotal certainty of creed.

I have no knowledge of a future life. Nor can I say there is none. Though reared rigorously in the Faith of the Fathers I can only say I do not know. I have watched the lich-gate close behind many and many a pilgrim, but no word has come back to me. Azrael's wicket swings incessantly to and fro on the silent brink of Time but across that vast unscanned abyss lies the blackness of oblivion through which no traveler has ever returned. I do not know. I do not know either whether it is better that my own or other ashes should go at last to feed the roots of the soft, green herbage, the flowers or the trees: to be blown about in protean forms by the law of indestructibility of matter, or whether it is best that I continue in personal identity beyond the veil which we call death.

We hope to meet our friends again, if not in Paradise, Elysian Fields, or Valhalla, then in "desolate wind-swept space, in twilight land or, No Man's Land." I say we hope to meet again but if the present existence be all, then "after life's fitful fever" our friends sleep well. Nothing can harm them further. God knows what is best.

We often become wearied, exhausted in the course of human affairs with its conflicts and complexities. The feeling is well nigh universal. We seem to be curbed, cloistered and caged like a bird from the wilds that in its mad desire for freedom will beat its wings futilely against the bars and strive for release, for escape, even by

death. It may be that extinction of life is but an outward sign which marks the movement of the soul into broader and freer stretches of spiritual being. We may stand perhaps in the very presence of the "Angel of the Darker Drink" and have no knowledge of the path he prescribes, but always, no matter how dark the clouds that hang before us, there gleams through murk and disarray the Star of Hope; the hope that this beckoning beam bespeaks the coming of that long-looked-for millennium in which "there shall be no more night."

Since the world rode out of chaos on chariots of flame, day is always dawning somewhere. Down the resistless stream of time spins the ever wheeling earth flung by the hand of God, and with every revolution light and life are abundantly ushered in. Let this be the auspicious symbol of our faith. Perhaps we can believe that in the evolution of the human soul, as it moves on toward its destiny, that it is constantly swinging nearer and nearer to some new spiritual sun whose resplendent disc pours out a soft, cool and unremitting effulgence; a sun which does not set like our own fiery orb. This assumption prompts the thought that when our sun goes below the horizon he is not set; the heavens glow for a full hour after his departure and so when the vital spark of man goes out the radiance of his personality illumines the sky of his world for a long time thereafter.

Thus it is with these friends of ours to whom in memoriam we must say Good-Bye. Farewell is a bitter word which closes all earthly friendships and finishes every feast of affection. It breathes despair. So now we say Good-Bye to our friends and former colleagues as we knew them. The philosophy manifested in their lives we must try to exemplify in bearing the distress and pain of our separation. Words fail and speech is vain. Let these flowers with their petalled lips and perfumed breath convey to them in beauty and in fragrance, those sentiments which are too intimate and ethereal for vocal expression. Our silent comrades shall abide in our hearts until we join them in realms of eternal withdrawal and infinite change. *Morituri te salutamus*. We who are about to die, salute you.

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## THE DIAGNOSIS AND TREATMENT OF TERTIARY SKIN SYPHILIS

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Tertiary skin syphilis appears most often during the third year after the chancre. According to Fournier's statistics 70% of such lesions occur during the first ten years of the disease. It is not inevitable since early and adequate treatment may prevent it and it may be missing in some of the so-called benign cases. Its appearance may be greatly delayed as in Petit's patient quoted by Burnier in Jeanselne's recent treatise on syphilis, in whom a nodular syphilide at the age of 87 years was the result of an infection acquired when the man was 20 years old. Fournier has stated that 90 to 91% of those presenting tertiary skin syphilis have had benign secondary skin manifestations. In his opinion and no clinician speaks with equal authority the chief cause of tertiary cutaneous syphilis is insufficient treatment.

The skin lesions of this period are the nodule or tubercle and the gumma. In contradistinction to the secondary lesions they are usually fewer in number, not so generalized, more monomorphous and more deeply seated, healing with scarring. The nodule is the more frequent. It is non-ulcerated or ulcerated in which case it is a minature gumma beginning in the derma instead of the in the subcutis. When purely nodular it is slightly convex, orbicular, the color of smoked ham, lentil-sized most often, firm and set into the skin much as a watch-crystal is held in its case. It is dry and scales slightly. In reality it is a large deeply-seated papule. Such nodules are most often found over the face, the alae nasi and the forehead but they may appear anywhere on the body. These nodules often present an orbicular formation like a circle studded with nodules, as a collar of pearls, in which case such a circle of lesions surrounds an area of healthy skin, as an arciform affair simulating a crescent, a half-moon, a kidney or a horse-shoe or as a series of excentric circles. This latter formation is especially characteristic of syphilis. Less frequently plaque formation results from the union of a number of nodules. In such cases the individual lesions are not ap-



parent but a thick, firm, elevated, smoked-ham colored, well-defined, slightly scaling patch is present. This is most frequent on the palms and soles where it is definitely psoriasiform.

The nodulo-ulcerative lesions begin as nodules which soon break down and ulcerate. They are usually multiple and frequently spread slowly scarring as they advance. Such an affair is termed serpyiginous and is pathognomonic of syphilis. When fully developed a nodulo-ulcerative lesion consists of an ulcer covered by a crust, the whole being seated on an indurated base. The crust is firm, compact, set into the skin, circular or polycyclic where several lesions have coalesced, dark in color, often greenish, with a close resemblance to an oyster-shell. Such a lesion is often spoken of as rupial. The ulcer is round, punched-out, with firm adherent borders and a dark reddish peripheral zone. Its floor is uneven and covered by a core resembling cooked codfish or by a creamy coating. Such a lesion heals with scarring of a particular type which when present is strongly suggestive of syphilis. Such a scar is circinate and red at first; later it becomes brown or even blackish and may remain so for years. As it fades centrally a brown ring surrounds the atrophic scar which is somewhat depressed and in texture resembles an onion-skin. It is of course indelible and is of prime importance from the retrospective standpoint especially when grouped closely, en bouquet as Fournier has said.

As to diagnosis the four chief points relative to the nodular syphilides are their firmness, the smoked ham color, their orbicularity and circinate grouping. At times one hesitates when confronted with a non-ulcerated lupus vulgaris which however has its apple-jelly nodules, its very soft tissue, and extremely slow course as compared to syphilis. Lupus erythematodes is less infiltrated, has more abundant and adherent scaling, tack-like processes which go down into the follicles, and stippled scarring. Acne necrotica, which may lead to confusion, appears in crops especially over the temples and along the hair line. Its lesions are frankly inflammatory and lack the color and firmness of the syphilitic nodules.

The nodulo-ulcerative syphilide may be confused with a number of conditions among which may be mentioned leg ulcer, sporotrichosis, cancer, ecthyma, tuberculosis, the bromide and

iodide eruptions. Fournier may be most appropriately quoted as follows in regard to leg ulcer. "Given any sort of an ulcer of the skin, one should always in making its diagnosis reserve a place for syphilis, no matter who the patient may be, whether he gives a history of syphilis or not, and all of this because of the frequent surprises by reason of the numerous cases of ignored syphilis." A simple leg ulcer is usually described as being situated in the lower third of the leg, often close to the internal malleolus and it is most often unique. It has no special configuration and is not punched-out, but has sloping edges. Its floor is not creamy nor does it possess a core which resembles cooked codfish. It is not crusted as a rule. Varicosities may be demonstrable. Cases in which syphilis affects a varicose limb are indeed difficult of diagnosis. Not a few so-called leg ulcers are accompanied by a positive Wassermann reaction and they may respond quickly to appropriate treatment. A careful search should be made for other evidence of syphilis. The therapeutic test may be the court of last resort. Favre of Lyon, France, has described cases which he termed "*Dermite pigmentée et purpurique*" some even showing gangrene. All of them were due to syphilis and they presented phlebitis and periphlebitis which as to pathology resembled the changes seen in syphilitic arteritis.

An ulcerative lupus vulgaris does not possess the configuration of syphilis. It is irregular with a soft base and undermined edges. It is a torpid affair. Characteristic nodules may exist about the ulcer.

Sporotrichosis presents lesions which when broken down are more fistulous than ulcerative. They are soft and do not possess a core. A culture readily makes the diagnosis.

A squamous-cell cancer is unique usually. It is often everted with a board-like hardness and bleeds easily. The neighboring lymph-glands are soon involved. A biopsy would settle the question if one were in doubt.

Ecthyma is more inflammatory than syphilis. It begins as a vesicopustule which ulcerates superficially. Its base is soft and it is auto-inoculable.

Iodide and bromide eruptions may be confused with the nodulo-ulcerative syphilides. A history of ingestion is usually obtained. An iodide eruption runs an acute course, is more



inflammatory and lacks the firmness of the syphilitic nodule. It is more acneiform than ulcerative. A bromoderma is frequently vegetating, is soft and superficial and lacks the characters which the nodulo-ulcerative syphilide presents.

A scrofuloderma affects by choice the neck; its ulcer is soft, undermined, has a bluish halo; it is really more of a fistula and does not have a core but suppurates freely.

The four stages of the gumma are too well known to require mention here. The gumma occurs most often from the third to the sixth year after the onset of syphilis. Fournier has noted its appearance fifty-five years after the chancre. Its favorite site is the leg especially just below the knee. A gumma usually lasts two to three months. It is unique in 60% of cases. At times such lesions are multiple and form plaques. When ulcerated it presents the same attributes as the nodulo-ulcerative syphilide except that it may be much larger. Its differentiation is discussed under that same heading, so repetition is not necessary.

A clinical diagnosis of tertiary skin syphilis is often possible. Some cases will tax the most skillful and in them laboratory measures may be of extreme value. Animal inoculation and a dark-field search for the *Spirocheta pallida* would be of slight value in tertiary lesions. A biopsy would distinguish them from cancer but might be confusing in tuberculosis. Serological procedures should not be neglected even though the Wassermann is frequently negative in late lues. A careful examination, especially of the mouth, throat and tongue, may disclose valuable corroboratory evidence in the form of a tertiary glossitis or a perforation of the hard or soft palate. The presence of lingual leukoplakia may constitute important evidence. The knee-jerks, Achilles and pupillary reflexes should be explored. The heart and aorta must not be overlooked. The therapeutic test may be of real value when done with arsenic, bismuth or mercury. Potassium iodide should not be employed for this purpose since it acts also in certain of the mycoses.

*Treatment.*—One can very appropriately quote from Schamberg and Wright:

"The treatment of late syphilis differs essentially from that of early syphilis, for the aim and object are not the same. In early syphilis the therapeutic goal is the extermination of all of the invading parasites in the body, with as vigorous an effort as is consistent

with safety to the patient. In late syphilis, the purpose of treatment is to effect a removal of the presenting symptoms, to prevent their return and to keep the patient in good health for as many years as possible. The question of effecting a radical cure in late syphilis is not one that demands immediate attention. The patient, having had for a number of years a luetic infection with inadequate or no treatment at all, in all probability has lesions which interfere with the structural integrity of his organs. Such patients are prone to have aortic lesions or atheromatous changes in some of the blood vessels, or lesions elsewhere. The chances of eradicating the disease after long years of residence of the spirochete in the tissues are not at all favorable. Vigorous treatment with the idea of bringing about a radical cure is ill-advised and prone to do harm. Many patients have had their lives abbreviated by too zealous an effort on the part of the physician to overcome the disease."

When seeing a patient with tertiary skin syphilis even though he or she appears in excellent health one should make a thorough examination as has been mentioned when referring to the diagnosis of these skin lesions. The results of such an examination are all-important since they largely decide what can be safely done for that particular patient and thus influence his future to a marked degree. It must be remembered that one is not merely treating the existing skin lesions but the body as a whole and any abnormal finding should add to one's conservatism since in this instance we are dealing with those who are apt to be damaged goods.

If one's patient is found to be in good condition then he may be treated by the combined method using neoarsphenamine and bismuth. Such a course would consist of 8-10 injections of the former with a total dosage of four-five grams plus ten to fifteen injections of iodo-bismuthate of quinine with a total dosage of two to three grams. The initial dose of neo should not exceed 0.15 gm. The bismuth may be given twice weekly and the neo every seven days. To save time one injection of each may be given at the same visit. For the first year such a course should be followed by a rest of at least one month, after which it may be repeated as required. Tertiary skin lesions respond quickly to either neo or bismuth but heal more rapidly under this combined treatment. It may be well at times to reduce the number of injections of neoarsphenamine to six in a course. As Jadasohn has said it is rarely necessary to give more than 0.60 gm. of neo to a man or 0.45 gm. of that same drug to a woman. Such conservatism

in dosage is particularly applicable to late syphilis. If our examination reveals an aortitis, a nephritis, or a liver involvement, then the rules for treatment will require revision. Sézary, a well-known French clinician, favors bismuth or mercury rather than the arsenicals in aortitis. Schamberg and Wright believe that Ehrlich arsenicals may be used in selected cases of cardiovascular syphilis. They prefer beginning treatment with bismuth or mercury. In chronic nephritis complicating tertiary syphilis Sézary suggests intravenous injections of mercury cyanide. Later a soluble bismuth salt may be given if necessary. When the liver is damaged in tertiary syphilis a soluble mercury salt or bismuth preparation is preferable to an arsenical. It is often difficult to determine whether these visceral changes are due to syphilis or not. At times tertiary lues may be best treated with bismuth alone. Besides I. B. Q. already referred to iodobismutol is an excellent salt as is also bismogenol which is a bismuth salicylate. In old cases of syphilis which show little activity mercurial inunctions are in order. They constitute a slow but valuable method. Potassium iodide has lost much of its popularity in the treatment of tertiary skin syphilis with the advent of the newer agents. It is still employed in cardiovascular syphilis, in joint involvement, in eye lesions and in central nervous affairs. Potassium iodide may be given alone or combined with the other remedies. It is best given by mouth, intravenous injection being unnecessary. Fournier recommended 3 to 4 grams per day believing that there was no advantage in larger doses. Mercury salicylate is an excellent insoluble preparation which may be advantageously combined with neoarsphenamine. Of the soluble mercury salts the bichloride is deservedly popular.

#### CONCLUSIONS

1. A careful physical examination should precede the treatment of any patient with tertiary skin syphilis.

2. Because such persons are frequently "damaged goods," treatment should be conservative both as to the drugs employed and their dosage.

3. It is better in such patients to carry on with a mild but long-continued treatment than to take chances with more radical measures

which could be not only dangerous but fatal.

4. Neoarsphenamine plus bismuth is an excellent combination which should be used whenever possible. Bismuth even alone is often of distinct value and it appears to be preferable to mercury, in most instances at least.

5. Any ulcer of the skin may be due to syphilis. If this fact is kept in mind it may result in not a few surprises.

6. Clinical means of diagnosis should not be neglected in the skin lesions of syphilis. If the characteristics of such lesions are kept in the foreground they will do yeoman service.

7. The Wassermann and Kahn tests are extremely valuable but they should not be regarded with that simple and child-like trust which passeth all understanding.

8. Emphasis should be placed on a thorough examination of the central nervous system not omitting a study of the spinal fluid. (Paper was accompanied by lantern slide demonstration.)

30 North Michigan Avenue.

#### DISCUSSION

Dr. William K. Ford, Rockford: If we exclude yaws, carefully controlled and repeated 4 plus Wassermann reactions means a patient has syphilis. The difficulty lies in the moderately positive tests in patients without symptoms; here we must use other tests such as Kahn, Klein, Hinton. A provocative injection of arsphenamine followed by several blood tests is a good procedure in patients with gummatous lesions.

Tertiary or late syphilis is characterized by a wide diversity of location and extent of lesions (involving almost any structures in the body), and often disturbs vital function. There is also a wide individual variation of the degree of resistance against infections; some patients go through life without outward signs of disease and others develop one disfiguring or crippling lesion after another.

The first aim of treatment is symptomatic relief, the restoration, where possible, of anatomic normality, or at least functional normality.

The second aim of treatment is to maintain the patient in good health, free from progression or relapse, for the balance of his life.

A patient with tertiary lesions or having latent syphilis is usually in middle or advanced age and often presents evidence of senility. The syphilitic infection is often complicated by more serious conditions of health and they are frequently poor risks. As they are usually not infectious, we do not have to consider the problem of sterilization by intensive treatment.

The Wassermann reaction becomes negative only in



two to five years and there is much uncertainty as to the significance of a negative test in this stage of syphilis.

In elderly syphilitics we try to relieve the symptoms with the least amount of medication and minimum discomfort to the patient. A good rule to follow is to give no arsphenamine to any patient over 50 years of age unless specifically indicated and then use only small amounts at weekly intervals with the patient under careful observation. Alternate courses of mercury or bismuth supplemented by potassium iodide or mixed treatment: mercuric chloride 1 gr.; potassium 15 gr.; elixir lact. peps. q.s., t.i.d.

In patients between forty and fifty years it is difficult to know how intensive to be. If expectancy is twenty to thirty-five years, then we should make a special effort to a negative Wassermann by treatment over several years with alternate courses of arsphenamine and bismuth. Two or three courses of 15 weeks bismuth, 10 weeks arsphenamine should be followed by five or six months of rest on mixed treatment. Then one course of bismuth and arsphenamine are given and again rest on mixed treatment.

Frequent physical examinations, Wassermanns, urinalyses, blood counts and spinal fluids should be performed.

Careful technic is very important. Arsphenamine dermatitis usually means a break somewhere in the technic or the administration of too large or too frequent doses or both. Sensitization arsenic dermatitis is probably due to paravenous infiltration with the drug.

Watch for the symptoms of poisoning during treatment. Our most valuable and effective drugs are poisonous and these patients are susceptible to jaundice, dermatitis and neuritis. Blood chemistry should be taken before and after the first course. The icterus index is a good guide to the liver tolerance for the drug (arsenic). If index is 15 or above, it is best to stop and give sodium thiosulphate until the index has returned to 10 or below.

The blood might well be tested for arsenic during a course and if it reaches .09 mg. per 100 c.c. or over it indicates that the patient is receiving arsenic from some outside source or is showing undue retention. In this case it is best to discontinue the drug temporarily until .08 mg. or lower is reached.

No group deserves more careful preliminary study and many sided follow-ups than patients with late or tertiary syphilis.

Dr. B. Barker Beeson, Chicago (closing): I think I might have stated that the persistently positive Wassermann is often a problem and the question is what to do about it. No one seems to know. There is no routine treatment. I think one should stress the conservative aspect of this problem and if, after several years of common sense treatment, the Wassermann is still positive, I think it is foolish to go on with the vigorous treatment. No one knows what the persistent Wassermann means and I think we should not rush in where angels fear to tread.

## CONGENITAL DYSFUNCTION OF THE SALIVARY GLANDS WITH OBSERVATIONS ON THE PHYSIOLOGY OF THIRST

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AND

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Congenital absence of salivary secretion is a rare anomaly. Despite its simplicity of recognition, the literature contains reports of only four cases in which all salivary glands were reputed to be deficient. Congenital absence of the submaxillary glands alone has been reported by Gruber<sup>1</sup>, and Bruno<sup>2</sup>. Nayak<sup>3</sup> in 1926 reported the anatomical dissection of congenital absence of the parotid glands and considered it the first case in the journals of anatomy.

The first report of congenital absence of all salivary secretion was made by Fasoli<sup>4</sup> in 1914. He reported an associated diminution of lacrimal secretion, early and extensive dental caries, and a reduction of taste. In 1924 Ramsey<sup>5</sup> reported congenital absence of salivary glands in father and daughter, both suffering early dental caries. In 1925 Blackmar<sup>6</sup> reported a case of congenital absence of salivary glands with associated atresia of all lacrimal puncta, but considered the lacrimal secretion normal. This case likewise showed marked dental caries. In no case was mention made of a disturbance of thirst.

We should like to present in greater detail what appears to be a similar case of salivary dysfunction. The case was that of a white male, aged 28 years. The family history was essentially negative. The past history was negative except for diphtheria at 5 years of age. Dry mouth had been recognized since infancy, and the patient habitually moistened his mouth with a few sips of water about every hour. However, when the occasion demanded, he could go as long as two hours without marked discomfort, and the dry mouth did not interrupt his sleep. Eating was made possible by drinking water throughout the meal and avoiding dry foods. His deciduous teeth were early lost through dental caries. The permanent teeth were so carious that at 21 years of age all except two lower lateral incisors, these being heavily crowned, were removed. The



upper false dentures had to be held in place by a thick mucilage. There had always been a reduction in lacrimal secretion so that crying never produced tears. Because of chronic dacryocystitis the right sac was extirpated at 10, and finally, the left at 27 years of age. No tearing had followed. The vision of the right eye had been impaired since his earliest recollection. The right testicle had always been much smaller than the left.

The conjunctiva appeared normally moist, and the cornea clear. There was evidence of previously patent lacrimal puncta. There was a compound hyperopic astigmatism with right congenital amblyopia. Scars were present from previous surgery on the lacrimal sacs. The mucous membrane of the nose was moderately moist and somewhat atrophic. The mucous membrane of the mouth appeared dry and the tongue heavily furrowed. There was marked pyorrhea around the two remaining crowned teeth. The ostia of Stenson's and Wharton's ducts could not be found. Along the lateral surface of the tongue, near the floor of the mouth, were a few glistening points representing probable secretion from the glands of Weber. The tonsils were small and fibrous. The pharynx appeared drier than normal. Laryngoscopic examination showed a moderately dry mucous mebrane. There was no evidence of aberrant salivary gland tissue. The process of milking the parotid ducts produced no salivary secretion. The submaxillary glands were not palpable.

The urinalysis was negative. The hemoglobin estimation was 90% (Dare). The erythrocytes numbered 4,290,000, and the leucocytes 8,400 per cubic millimeter of blood. The differential count showed 31% lymphocytes, 67% neutrophils, 1.5% eosinophiles, and 0.5% basophiles. The serologic test for syphilis was negative. The blood urea measured 20 milligrams per cent. The blood sugar measured 125 milligrams per cent with a normal glucose tolerance curve. The basal metabolic rate was -1%. Gastric analysis showed a total acidity of 74% and a free hydrochloric of 60%, with no retention. X-rays of the two remaining teeth showed the right lateral incisor to be devitalized, with bilateral unerupted first bicuspids of the second dentition. X-rays of the sinuses showed a cloudy right antrum. X-rays of the lumbar spine showed a spina bifida occulta of the first sacral vertebra. Teleroentgen-

ogram of the chest, as well as fluoroscopic examination of the stomach, was negative.

A study was then made of the threshold stimulus for taste in this patient and compared with four apparently normal controls. It was obtained by ascertaining the minimal concentration of a solution of the four substances to be tested capable of arousing a taste sensation. As the table indicates, the patient's acuity compared favorably with that of the control subjects as well as with the generally accepted normals.

TABLE I  
A COMPARISON OF TASTE SENSATIONS

Name	Salt NaCl gm/100 cc.	Sweet (Dextrose) gm/100 cc.	Acid HC1 gm/100 cc.	Bitter (quinine) gm/100 cc.
C. D. ....	.25	.563	.0087	.00005
F. R. S. ....	.375	.375	.0087	.000063
R. K. ....	.438	.688	.0070	.00005
R. E. D. ....	.25	.438	.0053	.000013
Average .....	.328	.516	.0074	.000046
Patient (D. M.)..	.375	.625	.0087	.000038
Threshold according to Howell's text.	.25	.500	.0070	.00005

In an effort to show quantitatively the salivary and buccal secretion the following experiment was conducted. The patient and three apparently normal controls in the same age group were used. The subjects refrained from swallowing while a suction tip was moved continuously about the floor of the mouth. The aspirated secretion was measured for five minute intervals. As the graph shows, the controls averaged 3.2 cc. per unit of time, whereas the patient secreted too little to be measured. Each subject was then given 6.0 gms. of pilocarpin subcutaneously and the five minute interval secretions recorded. As shown, the normals increased their output by 700%, reaching a maximum in twenty minutes, and the patient responded sufficiently to collect 0.1 cc. during the first period. This consisted of a thick tenaceous mucus from the floor of the mouth lateral to the tongue. The patient sweat profusely as did the controls.

Thirst has been defined as a sensation of dryness of the mouth and throat and a craving for liquid. It is a matter of common knowledge that local conditions which cause a dryness of the mouth produce a sensation interpreted as thirst. This is observed with prolonged speaking or singing, mouth breathing of dry hot air, or chewing of dry foods. On the other hand, two general theories have been introduced to account for thirst in general dehydration and its abolition

by either rectal or intravenous administration of fluid. The first is that dehydration produces stimulation of many sensory nerves, and that the sensation is referred to the throat because of the mental association between thirst and drink. The second theory is that dehydration results in a decrease of salivary and buccal secretion with a resultant dryness of the mouth and throat interpreted as thirst.

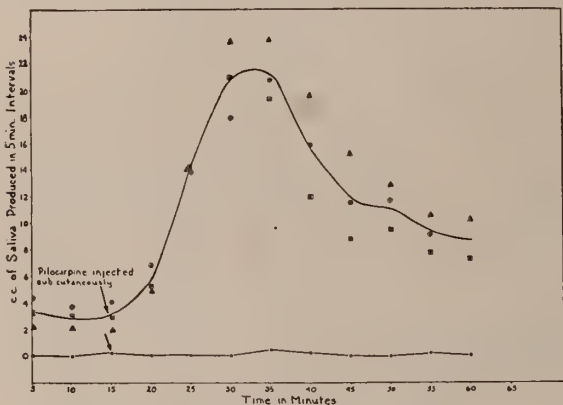


Fig. 1. A comparison of Salivary and Buccal Secretion. The output of the controls is shown in the upper curve, while that of the patient is shown below.

In support of the second view Cannon and others<sup>7, 8</sup> have claimed that the salivary flow governs the daily fluid intake of animals. Montgomery<sup>9, 10</sup> in a recent study of dogs before and after extirpation of the salivary glands, was able to show no appreciable difference in their average intake. She observed, however, that the mucous glands in the dog were sufficient to keep the mouth quite moist. More recently Gregersen and Cannon<sup>11</sup> have attempted to overcome this feature by exposing dogs to a temperature of 40° C for two hours at a time and recording the fluid intake during this period. They observed that after the removal of the salivary glands the animals in some cases drank 100% more water, but only during the period of increased temperature. This, they argue, shows the influence of the salivary glands in the regulation of fluid intake. Is it not possible that their results were disturbed by bringing in the factor of heat regulation, which in the dog depends in part on the evaporation of moisture from the mucous membrane?

It is our good fortune to have in this patient an experimental subject peculiarly adapted to this investigation. He has no salivary secretion and the mucous glands are not sufficient to keep

the mouth moist. Data collected concerning his daily fluid intake for eighteen days was compared with four normal individuals under similar circumstances over the same period. As the table indicates, the average daily fluid intake does not differ appreciably from that of the controls. The only difference we found was that the patient drank water on the average of twelve to eighteen times daily, and then just enough to moisten his mouth, while the normal individuals drank only four or five times a day in much greater quantities.

TABLE 2  
A COMPARISON OF FLUID INTAKE  
(AVERAGE 18 DAYS)

Name	Water cc.	Coffee cc.	Tea cc.	Milk cc.	Total cc.
M. E. J.....	1806	736	903	278	3723
L. P. K.....	1940	270	130	103	2443
M. J. S.....	1411	214	55	380	2061
F. R. S.....	1803	144	56	217	2232
Average .....	1740	355	286	245	2615
Patient (D. M.)	1975	191	260	357	2783

Upon careful questioning, and after due consideration, the patient, a university student, stated that he differentiated between dry mouth and a sense of thirst. Sips of water which would moisten his mouth could still leave a sense of thirst, and thirst was not always experienced when his mouth was dry.

CONCLUSIONS AND SUMMARY

1. A case is reported with congenital dysfunction of the salivary glands, hypofunction of the lacrimal glands, unilateral congenital amblyopia, unilateral testicular atrophy, and spina bifida occulta.
2. Extensive dental caries was observed in this and all previously reported cases. A similar disturbance has been observed in cases of acquired xerostomia. Apparently, freely flowing saliva is a prerequisite to sound teeth.
3. Anomalies of the lacrimal apparatus were observed in three of the five reported cases. This is of interest in view of the close relationship between salivary and lacrimal pathology as observed in Mickulicz' disease.
4. Our case showed no disturbance of taste as was observed by Fasoli.
5. What significance the atrophic testicle might have in the absence of a history of epidemic parotitis is highly speculative.
6. Absence of salivary secretion did not increase the average daily fluid intake in this in-



dividual. If thirst is the only factor which governs fluid intake, then it must be a more complex mechanism than dryness of the mouth and throat.

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#### DISCUSSION

Dr. Earl A. Zaus, Chicago: Congenital dysfunction of the salivary glands is rare. The literature contains reports of only four cases in which there was an absence of all the major salivary glands.

Through the intermediary of Dr. Vischer we have been asked to discuss this case because during the last eight years we have seen a similar case in a child who is now ten years old. The case has not been reported but in many ways it is very similar. Our patient had no dysfunction of the lacrimal ducts, and I think the Doctor has proven that the salivary glands are not the major factors in thirst. We feel the same way about it. Our patient has no excessive thirst.

In the Physiology Department of the Northwestern University Dental School, we were more interested in two other angles of this peculiar congenital dysfunction. We were interested in the dental caries which was so rampant. The other thing is the fact that, as has been shown before, the saliva is not particularly necessary for normal digestive functions. One can almost say definitely that we do not need the ptyalin in saliva to produce normal digestion of carbohydrates. A few years ago, Bergeim, investigating the relation of ptyalin to starch digestion, came to the conclusion that deficient ptyalin action did not interfere with carbohydrate digestion. The investigator concluded that excessive starch intake influenced the digestion of proteins, through the absorption of pepsin, more than any other factor in digestion.

This anomaly is probably an anomaly of the formation of salivary glands but it is peculiar in that these three groups of glands, parotid, submaxillary and sublingual, are not produced from the same anlage and so that this fetal mal-development is a peculiar quirk of nature.

We are interested mainly in the dental angle. You may be familiar with the theories of dental caries and know that they are based upon the fact that saliva is protective. Some say that it is supersaturated with calcium and that teeth cannot dissolve. It is also believed by some that saliva washes away the acids and buffers them. Another theory is that certain salivas have an immunity to some bacteria which are known to produce large quantities of acid. There have been many

investigations of this problem on the health of teeth. Mrs. Montgomery reports in her article that none of the dogs in which the salivary glands were removed developed any evidence of dental caries. We have a better piece of work done by Kanthak on monkeys. In these monkeys, eleven months after operation, it is rather interesting to find that none of them developed caries.

I want to close by saying that we are repeating this work on rats. We operate upon them at the age of twenty-six days and take out all the major salivary glands. Now, after four months, we have produced nothing like the dental caries we see in man.

Dr. V. Thomas Austin, Champaign (closing): I should like to thank Dr. Zaus for his interesting discussion. It is possible that the difference in the results in the experimental animals and the humans is due to the difference in mucous secretion, it being abundant in the dog and not in man.

#### A SURVEY OF THE PRESENT STATUS OF ELECTROCOAGULATION OF TONSILS

LOUIS SAVITT, M. D.

CHICAGO

*Definitions.*—In discussing electrocoagulation of tonsils the terms fulguration, desiccation, and coagulation have been used with considerable confusion. I will define them at this time so that the subject matter will be clearly understood. Fulguration is the destruction of tissue by the playing of high frequency sparks upon the parts to be destroyed by superficial action, and is the least adaptable for the removal of tonsillar tissue. Desiccation is the effect of the unipolar current which brings about the evaporation of the fluid element of the cells, leaving the treated tissue in a dehydrated condition, such as a state of mummification. This is brought about by burying the needle in the tissue instead of playing high frequency sparks upon the surface of the tissue. Coagulation is the exact opposite of these methods and is accomplished by the heavy amperage and low voltage of the bipolar D'Arsonval current being converted into destructive heat within the tissue, by the resistance of the tissue, to the tremendously rapid moving current and is concentrated about the point of the electrode, coagulating the protoplasmic and cellular structure.

With these definitions clear in your minds, I will attempt to review the question of electro-



coagulation of tonsils so as to present a general opinion of its relative merits. I will not discuss the standard methods of removing the tonsils, from the days of the buillotine, through the finger, the blunt and sharp instrument dissection, the wire snare, the LaForce, the Sluder, the suction and other well-known methods, but rather confine my remarks to opinions gathered from a survey of the literature and permit you to arrive at your own final conclusions as to its value as an adjunct to our surgical armamentarium in removing tonsils.

In the past ten years a great deal of interest has been manifested by the physician and general public in the electrosurgical removal of the tonsils, no doubt due to the great amount of general publicity given the subject through the medium of the health columns, lay periodicals and medical publications. A general wave of enthusiasm had been created by electrocoagulation. Men of the highest standing and of unquestioned reputation and ability have either heartily sanctioned, condemned, or are waiting further development of the procedure. The general public had been informed that there is no bleeding, no cutting, no hospitalization, and is without apparent difficulties or dangers. They have been given to understand that they have been now offered a safer, saner and surer method for the relief of throat conditions or general systemic conditions, resulting from infected tonsils. They have been informed that this method is entirely an office procedure from which the patient steps forth after treatment to resume his or her daily routine without interruption since no time is lost from his daily vocation.

To the oto-laryngologist interested in surgical diathermy there is no question but that electrocoagulation of tonsils is a valuable addition to his tonsillectomy armamentarium. In properly selected cases the competent efficient tonsil operator should be qualified to offer his patients their choice of surgical removal or removal of their tonsils by electrocoagulation. Advocates of this method point out that many patients who require tonsillectomy and who absolutely refuse surgical tonsillectomy, because of fear or other reasons, will readily submit and have their tonsils removed by diathermy when the method is fully explained.

Those who have faith in diathermy feel that

electrocoagulation is unquestionably the method of choice in the aged and comparatively debilitated as the cardiac, the tuberculous, the nephritic, the hemophiliac, and where the question of a possible malignancy arises. It has been freely remarked that many physicians are doing themselves and patients an injustice by rushing enthusiastically into electrocoagulation without the proper experience or training to guide them. Those who favor this method feel that a most valuable addition to their armamentarium is being ruined by the attempted usage of untrained operators. There is no question that electrocoagulation is a valuable asset to their resources in dealing with the diseased tonsil, and the operators with this perfected technique, as well as electrosurgical for such cases as may be indicated, can render better service.

At present many believe that tonsils can be completely and efficiently removed by electrosurgery. The efforts of such pioneers as Wharer,<sup>1</sup> Wahering,<sup>2</sup> Gross,<sup>3</sup> Balmer,<sup>4,5</sup> Hollander<sup>6,7</sup> in the middle west and Skillern,<sup>8</sup> Silvers<sup>9</sup> and Dillenger<sup>10</sup> in the east have demonstrated that electrosurgery is a rational procedure in selected cases for tonsil extirpation.

In this paper I will present the opinions of men who have done a great deal of work on this subject and will try and point out to you some of the disadvantages of this method as well as the advantages. The general indications are far from conclusive, but on the basis of general reports certain indications appear quite definite. All of the advocates of electrocoagulation of tonsils feel that this method should not be attempted by those not thoroughly familiar with general surgical tonsillectomy. They feel that while surgical tonsillectomy is undoubtedly the procedure to be preferred and will continue to be the method of choice for the removal of tonsils in the majority of cases, electrocoagulation has its place as the best available substitute for surgery.

Silvers, in his classification of end results of electrocoagulation states: 1. That a complete tonsillectomy is now possible by electrosurgery. 2. As an adjunct to the incomplete orthodox surgical tonsillectomy this method is valuable. 3. Tags, cicatricial contraction and lymphoid tissue appearing a year after operation are finally and effectively destroyed. 4. A shock proof,

nearly bloodless tonsillectomy is possible when the skill in electrosurgery and a thorough knowledge of the anatomy of the throat is mastered. 5. Electrosurgery, being controllable from start to finish of the operation, permits a multi-stage technique to replace the more radical single stage operation.

*Indications for Electrocoagulation.*—After an intensive survey of the recent literature, the following generally accepted indications were given.

1. Post-operative tags.
2. Lymphoid remains or regenerated tonsil tissue.
3. Removal of tonsils in conditions complicated by
  - a. hemophilia
  - b. tuberculosis
  - c. hypertension
  - d. nephritis
  - e. marked debility
  - f. cardiac disturbances
  - g. syphilis
4. In the aged and infirm.
5. In phobias.
6. Growths and malignancies.
7. Various fungus infections.
8. Lingual hypertrophies and varices.

*Limitations and Contraindications.*—Electrocoagulation as is advocated by physiotherapists is a tedious, time consuming, ultra conservative procedure. It requires judgment, technical skill, patience and meticulous care. The multi-stage method advocated is the gradual extirpation of the tonsil, destroying a portion at one time. Inasmuch as the method is employed where conservatism is of paramount importance any attempt to destroy the entire tonsil at one sitting or large portions of it defeats the very purpose for which this method is employed. This is dangerous, not feasible and very impracticable and cannot be used in treating children or highly nervous individuals.

Notwithstanding the enthusiasm of the above statements I will quote Lillie<sup>11</sup> from the 1932 report of the section on oto-laryngology and rhinology of the Mayo clinic, "there is in use, although the method is fortunately on the wane, a method of electrocoagulation of the tonsil. There seems to be no logical basis for the method. It is as dangerous as surgical removal and the discomfort is extended over a long period. It

is supposed to be bloodless, but apparently it is not bloodless. In this section we have never observed a patient whose tonsils have been entirely removed by electrocoagulation. Removal of the remaining tags is more difficult and histologic study of the tags reveals much evidence of disease. This method is not used in the clinic."

Skilern remarks that while he regarded the use of coagulation as an entirely safe procedure when complications rendered the usual radical method contraindicated, yet the use of this destructive element is not without grave dangers, and requires as much skill and knowledge of the part, as would be required in the orthodox surgical procedure.

W. J. Yonkers<sup>12</sup> states that his results have been very unsatisfactory and is still in doubt as to whether there was any indication for this method of removal.

Shambaugh and Dougherty<sup>13</sup> have reported on their experience with electrocoagulation as it was investigated in the department of oto-laryngology, Rush Medical College. Since that report they have continued to follow up their cases and find no reason for altering their minds in respect to the conclusions there expressed. They state: "We are very much disappointed in this application for the removal of enlarged tonsils. The method is entirely too costly in loss of time to the patient. The discomfort to which the patient is subjected is much greater, especially when one considers the number of treatments necessary. They further state the method is not free from danger of secondary hemorrhage and when such occurs the friable condition of the treated area renders the control of bleeding more difficult. We have not yet accomplished complete removal of the faucial tonsils by electrocoagulation, although the treatments were carried over a number of months. No patients have presented themselves from the outside where the tonsil fossae were free from residue of lymphoid tissue."

Tyler<sup>14</sup> advises that while electrocoagulation plays a very important role in the armamentarium of every laryngologist, in his opinion, it in no way supplants the surgical removal of tonsils, and feels that it should be used only in cases which are poor surgical risks.

*Author's Personal Observations.*—During the past five years while performing more than 125



tonsillectomies by diathermy the following observations have been recorded as to the advantages and disadvantages of tonsillectomy by electrocoagulation.

1. It is a method par excellence in the destruction of tonsillar stumps and recurrent lymphoid tissue. These are the cases in which clean postoperative tonsillar fossae were observed.

2. The reaction produced by diathermy have at times been as severe as that of surgical enucleation.

3. No given number of treatments can be promised the patient. In my series the number of treatments have varied from 12 to 26.

4. All of my patients were able to return and continue with their usual routines. Also to partake of their usual meals.

5. Electrocoagulation is not a suitable method for children and nervous individuals. It is not recommended in these cases.

#### CONCLUSIONS

1. The consensus of general opinions throughout the country is that surgery will continue to be the method of choice for the removal of tonsils in the greater percentage of cases requiring tonsillectomy.

2. Since electrocoagulation of the tonsils is being used in special and selected cases, the otolaryngologist should familiarize himself with the technique of its use, so that he will be equipped to use the method best suited to the condition at hand and should not be limited by prejudice, equipment or lack of knowledge.

3. In spite of the voluminous articles that have appeared on the subject, we are as yet without conclusive evidence as to the procedure to adapt. As in all disputed problems each interested otolaryngologist will be forced to use his own judgment in deciding which procedure to follow. It is the test of time which really proves the worth of any accepted treatment and confines it to the cases which will actually be benefited.

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#### DISCUSSION

Dr. M. H. Cottle, Chicago: I thought that Dr. Galoway in his presentation this morning summed up the status of diathermy, etc., in connection with the treatment of carcinoma about the head and neck. I think Dr. Hollender set at peace the problem of ionization. Electrocoagulation of tonsils is not new. It was done in 1915 at St. Bartholomew's in England; it has been done at the Cook County Hospital since 1920. I have been trying to do it for thirteen or fourteen years and am just about completely convinced that I cannot see any true indication for the removal of tonsils by diathermy as contra-distinguished from surgery. Dr. Broadwell this morning presented a report of 118 cases of tonsillectomy in tuberculosis, done surgically. In hemophilia or high blood pressure or other conditions you have felt forced to do complete tonsillectomy in many of these cases and have done it surgically. As far as the removal of stumps or tags of tonsil is concerned, you can do it with diathermy or you can do it surgically. That it is an addition—yes, but that it is a substitute—absolutely no.

Dr. Louis Savitt, Chicago (closing): I have nothing further to add. I wish to thank Dr. Cottle for this very kind discussion.

#### THE SURGICAL MANAGEMENT OF OZENA

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The term ozena is used loosely by a number of clinicians. But it represents a definite prescribed pathologic condition. There are two recognized clinical types of atrophic rhinitis: 1. primary atrophic rhinitis or rhinitis atrophica

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cans fetida et crustosa which is on a metabolic or endocrine basis and 2. secondary atrophic rhinitis which is associated with chronic paranasal sinusitis. The primary type eventually leads to true ozena with its characteristic fetor, while the secondary form occasionally develops crusts and fetor of a mild nature. Ruskin<sup>1</sup>, after an extensive research both with microscope and roentgen ray, prefers to consider ozena and atrophic rhinitis as two distinct entities and the names should not be confused. He concludes that ozena implies a symmetrical primary disease of the mucosa resulting from an obliterating endarteritis while atrophic rhinitis is a disease of the nasal fossae secondary to chronic suppurative nasal infection and characterized by lymphocytic infiltration of the mucosa with chronic inflammatory changes. The writer is in accord with this classification from the standpoint of pathogenesis but feels that for clarity the terms primary including ozena, and secondary better identify the atrophic nasal conditions.

Curiously, ozena is analagous to otosclerosis. They both affect young, healthy adults, especially the female; they both are circumscribed pathologic processes, of insidious onset, chronic and progressive, with practically no systemic complication; they both destroy the sensory function involved; they both make social outcasts of their victims, who in time become difficult psychogenic problems; and they both present etiologic and therapeutic stumbling blocks.

Since the exact cause of primary atrophic rhinitis is not known the principles underlying its treatment are as varied as the methods employed. Surgically, such discarded operations as curettement of the entire nasal chamber, removal of the turbinates, blockage and extirpation of the sphenopalatine ganglion, and periarterial sympathectomy on the large vessels of the neck indicate the etiologic factor considered in each method.

It is a clinical observation that ozena is seldom seen in a narrow nose but only in wide nasal chambers. The degree of involvement is in direct ratio to the degree in width of the nasal cavities. The wider the nose the worse the nasal condition. If, in a case of ozena, there is a nasal deflection on one side the atrophy and crusting will be found greatly reduced on that side. On the other hand, if the septal deviation

should be corrected, atrophy and crusts become increased in the previously obstructed side.

Another common observation in ozena is the formation of crusts in surgically exposed, paranasal sinuses which were otherwise free of infection with only a thin mucosal covering. Thus, introduction of more air favors increased atrophy and crusting. Lautenschlager<sup>2</sup> proved that the secretions come from the nasal mucosa and not from the sinuses. Abnormal width of the nose tends to increase oxidation and evaporation of secretions which lie on the mucosa. The columnar epithelium becomes injured and replaced by stratified squamous. It is a clinical fact that if the nose is blocked by cotton or sponge for several days the nasal mucosa becomes less pale, crusts become softer and looser and the malodor less distinct.

The objective of surgical therapy in ozena is based on the physical considerations given, and involves a means of permanently narrowing the nasal chambers with minimum injury to intranasal structures. To that end various surgical procedures have been introduced with varying success.

In 1894 Sanger<sup>3</sup> attempted to solve the problem of narrowing the nasal cavities by the use of metal obturators within the nose. This method was soon discarded as annoying and impractical for prolonged use. Gersuny<sup>4</sup> in 1900 used paraffine and from then on began an era of research for suitable heteroplastic and autoplastic implants. J. C. Beck injected paraffine into the inferior turbinates in 1907. Weleminsky<sup>5</sup> implanted solid pieces of paraffine into the nasal septum. But it was soon found that paraffine had a tendency to spread in the tissues and annulled the purpose intended. Ekert Mobius<sup>6</sup> considered spongy beef bone efficient material. Krug<sup>7</sup> and later Pollock<sup>8</sup> stimulated the use of ivory implants first introduced by Flatan<sup>9</sup> in 1900. Steurer<sup>10</sup> advised bone from the tibia or rib cartilage. Muskat<sup>11</sup> experimented with fascia lata of the thigh. Other kinds of implants employed are celluloid, gutta percha and fat. The above implants are deposited in pockets beneath the mucosa of the septum, inferior turbinate, or floor. This operation became popular because it was simple. However, the disadvantages are that on account of the atrophic mucosa fistulae eventually form and the implanted substance becomes

extruded, or if fat is used it becomes resorbed in a short time.

In 1916 Lautenschlager<sup>12</sup> reported his operation whereby he narrowed the nasal cavity not by implanting foreign material in it but by transposing the lateral nasal wall on both sides towards the septum. He accomplishes this by entering the maxillary sinus from the canine fossa through the labio-gingival incision, breaking through the naso-antral wall anteriorly and at the base, and forcing it toward the septum. The antral mucosa is completely removed. The ethmoid is opened through the antrum and curetted, and the middle turbinate is pushed medially. All this is carefully done so as not to injure the nasal mucosa. Previous scarification of turbinates and septum helps produce adhesions between them when approximated. Firm packing in the antrum keeps the lateral wall in its new position. This operation is a rather formidable one with considerable postoperative reaction and therefore has not received popular approval. Since then Wittmaack<sup>13</sup>, Hinsberg<sup>14</sup>, Borries, and Halle have developed modified technics. Halle's<sup>15</sup> modification transposes the lateral wall through an endonasal incision.

Schoolman<sup>16</sup> in 1924 introduced Halle's technic and reported favorable results in a series of cases performed at the Illinois Eye and Ear Infirmary and the Mt. Sinai Hospital of Chicago. However, otolaryngologists in this country have been rather slow to accept radical surgical measures for the treatment of ozena. Halle's operation has recently been improved by Wachsberger who has made an extensive study of the ozena problem.

The method of Wachsberger<sup>17</sup> is as follows: Local anesthesia is generally used. The medial side of both turbinates and the parts of the septum opposite are scarified with a knife. An incision along and on the facial side of the pyriform crest, extending from the insertion of the inferior turbinate down to the nasal floor, is made and carried through the skin and periosteum (the same as in a Canfield-Sturman for radical antrum). This is followed by elevation of the periosteum over the facial wall for about one-half inch, and then by loosening of the periosteum at the height of the pyriform crest by scraping it with the edge of a chisel. This facilitates the undermining of the muco-periosteum along the nasosphenoidal wall below the inferior turbinate and the floor of the nose. A medium-

sized Killian speculum is then inserted into the wound, its branches protecting the soft parts of the cheek on one side and the mucoperiosteum on the nasal side, thus exposing the anterior and medial wall of the antrum. An incision parallel to the pyriform crest is made into the facial wall with a chisel, from the level of the insertion of the inferior turbinate down almost to the level of the nasal floor. The upper end of this incision is extended upward and medially until it severs the continuity of the pyriform crest. The lower end of this incision is extended medially at a right angle and severs the pyriform crest as near to the nasal floor as possible. Difficulty may be encountered here because of the great thickness and density of the bone, as is often found in ozena. Halle's saw which is ordinarily used in plastic operations on the nose, is the most suitable instrument for this. The bone is saved from within outward.

The cutting of the nasosphenoidal wall backward and along the nasal floor is next accomplished with the author's bone scissors or a chisel. To transpose the lateral wall a heavy, rigid, septal elevator is introduced into the antrum through the incision into the facial wall and firm pressure is exerted against the nasosphenoidal wall forcing it medially as close as possible to the septum. It is essential that close approximation of the turbinates and septum be made so adhesions form between them. Firm packing of the antrum with vaseline tampons concludes the operation.

Wachsberger states the advantages of his method are as follows: The operation is done through the nose. It is done without any incision into the nasal mucosa thus preventing permanent openings into the antrum. His method is applicable and as successful in persons with antrums of normal size. Mobilization and transposition of the most anterior part of the lateral wall result in narrowing of the nasal cavity to a greater degree and make this method suitable for advanced cases. It is easier to perform technically, and the after treatment is simple.

As for postoperative complications, he had one patient in whom a chronic dacryocystitis developed which was cured by resection of the tear sac. Empyema of the antrum occurred in another case which was controlled by irrigation and drainage through the operative wound. He further states that disregarding the transient traumatic reaction following the operation the



objective resulting changes in the nose are: disappearance of the pallor and dryness of the mucosa and the crusts except for occasional soft scabs in the nasopharynx in a few less successful cases. He observed polyps develop in three cases shortly after operation. In one case recently seen, five years after his first attempt with his modification, the nose was as good now as it was after the operation. The disappearance of the fetor is a definite result, and since the malodor is the most annoying symptom to the patient he considers this fact alone makes the operation worth while.

At the Research and Educational Hospital of the University of Illinois the technic as outlined above has within a period of six months been performed seven times, bilaterally in two cases and unilaterally in three cases. Only one side was done at one sitting because our experience has been that quite a local reaction with great discomfort occurs and requires almost a week for its resolution. The thickness and density of the bony wall present a technical difficulty. We use the Halle saw and chisel to loosen this wall and care must be taken to avoid fractures as this bony wall is often brittle. In one case chiselling the nasoastral wall posteriorly caused severe hemorrhages. The bleeding vessel, apparently a branch of the sphenopalatine artery, could not be located. Besides tight packing two blood transfusions were required to control the hemorrhage. Empyema of the antrum which readily yielded to irrigations occurred in one case. As mentioned earlier the antrum on exposure soon fills with crusts which continue until the incision closes. In one case a portion of the nasoastral wall broke off anteriorly and was removed. However good narrowing was obtained by the occurrence of strong adhesions. A surgeon soon overcomes certain technical difficulties in this operation with experience and practice, and thereby minimizes postoperative reaction.

The postoperative reaction of the atrophic nasal tissue is startling. The inferior turbinate, especially, becomes enlarged, hyperplastic, and its mucosa assumes a pinkish hue. (Fig. 1, 2 & 3.) The fetor immediately disappears and if good intranasal narrowing is maintained crusting becomes a negligible factor. The after treatment requires little time and effort. An interesting observation is the freedom of nasal respiration in spite of the greatly reduced nasal chamber

space. Two patients claimed they could distinguish certain odors. The patients take on new hope and with it a markedly improved psycho-

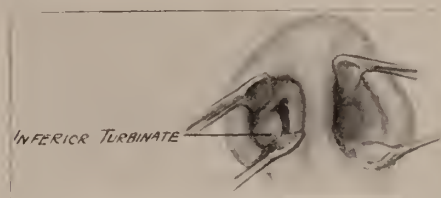


Fig. 1. Mrs. M. Right side operated on three months ago. Left side not operated on. Note prominence of the right inferior turbinate and reduced nasal space. Left nasal space is wide.

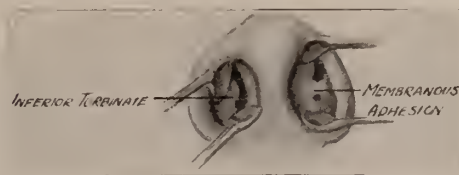


Fig. 2. Miss A. K. Right side operated on July 21, 1934. Left side operated on August 18, 1934. The hyperplastic inferior turbinate behind the membranous adhesion is visible through the upper opening.

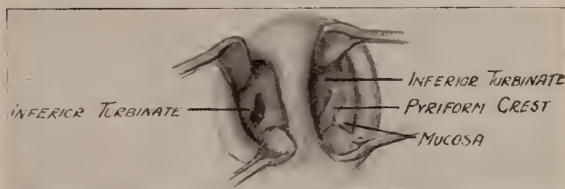


Fig. 3. Miss M. S. Right side operated on two months ago. Left side operated on two weeks ago. The pyriform crest is still exposed before covered by mucosa.

logic state. The writer, after having experimented with a number of recognized medical and surgical types of therapy considers at present, the Wachsberger modification the most rational and practical form of therapy for physiological cures in cases of genuine ozena.

I wish to thank Prof. Lederer for his encouragement and interest and Dr. M. Gorin, resident in otolaryngology at the Illinois Research Hospital for his diligent co-operation in the operations and study of cases thus far undertaken in our series.

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### DISCUSSION

Dr. Harry L. Pollock, Chicago: In the brief period of time allotted Dr. Morwitz it is naturally impossible for him to discuss in detail all phases of ozena relating to etiology, pathology and treatment. He has, however, given a brief synopsis of some of the theories of etiology and pathology, to all of which I do not subscribe. But since nothing absolutely definite is known as to the etiology it becomes a matter of individual opinion, and one man's theory is as good as another's.

One fact regarding ozena which I believe is definite is that its incidence in America has markedly decreased in the past fifteen years and this is substantiated by reports of individual rhinologists as well as by those of large free clinics. That this is not due to economic circumstances is quite apparent, since fewer and fewer cases are seen in a great many charity institutions. The decrease in incidence is due, I feel, to two main factors; first, restricted immigration from southern and south-eastern Europe, countries wherein ozena is most prevalent and which have furnished the source of the majority of our cases; second, individuals affected with acute nasal inflammations have been educated as to the importance of early and proper therapy, thus avoiding in a great measure chronic sinusitis, and obviating to a great extent the chief exciting factor in those individuals who possess a hereditary predisposition to genuine ozena.

In an address before the New York Academy in November, 1933, I presented what appeared to me the most lucid explanation as to the etiology. Otto Fleischmann, in his presentation of extensive data based on macro- and micropathologico-anatomic studies of the bone and mucosa of genuine ozena, concluded that it is an inherited lack of development of the bones and mucosa of the nose which places the stigma of a predisposition on these patients, demonstrating that an inherited predisposition must be present before the exciting cause, such as a chronic sinus disease, scarlet fever, diphtheria or any other systemic infection could precipitate the clinical picture which we designate as ozena. Every advanced case has an abnormal patulency of the nasal chambers and as Dr. Morwitz states, the only permanent cure or alleviation of the symptoms can

be brought about by the narrowing of the nasal passages through surgical interference. This may be accomplished by either of the two methods—1. bringing the lateral wall toward the septum or 2. ballooning out the septum by means of subperichondreal implants. With reference to Dr. Wachsberger's modification of the operation to bring the lateral wall toward the septum, I am inadequately equipped to discuss it since I have never employed the procedure in practice. I have, however, carried out the procedure on a few cadavers and in my opinion it appears to be the simplest of the radical operations and should tend to cause fewer complications, inasmuch as he fully protects the soft parts of the cheek and does not injure the mucosa of the antrum. It would seem that the ultimate results might be more satisfactory than those obtained in the original radical procedures. Dr. Morwitz has briefly mentioned the method of intranasal implantation of ivory. My eight years' personal experience with ivory implantation has been very extensive and I wish to emphasize that in only a small percentage of cases did the implant extrude itself and when this did occur, it did so shortly after the ivory was implanted. In only one case in my experience did a fistula result. The great majority of patients operated on by this method obtained a physiological cure and the remainder have been moderately benefited.

There is no question but that the surgical treatment of ozena is the proper one, as palliative measures are absolute failures. As to what surgical procedure be employed, this depends on the individual operator, but as in any undertaking, the procedure which accomplishes the desired results by the simplest means and with the least amount of danger is the method of choice.

In closing I want to add that while in New York I had the pleasure of examining several of Dr. Wachsberger's patients operated on by his method, and observed that the results were satisfactory inasmuch as the fetor had disappeared and there was practically no crusting.

Dr. S. M. Morwitz, Chicago (closing): I want to thank Dr. Pollock for his courtesy in discussing this paper so fully. These cases of ozena in young people, young girls particularly, who are quite conscious of the odor which they cannot appreciate themselves but are told of, tend to make the patient a social outcast, and anything that can be done to remove the odor at least will be of considerable value. This problem has been of great interest to many workers, and I think, according to the present literature and what has been done in ozena, that something has been accomplished. Dr. Pollock has stated that palliative measures have not produced the results we like. Implants have had some effect, but I feel that this type of operation which will more or less permanently reduce the lateral walls, is more effective, because we know we can reduce the space and eliminate the odor. This we know from experience, though we cannot explain it except from observation. The Wachsberger modified operation should be given more consideration in the treatment of genuine ozena.

## IMPORTANCE AND LIMITATIONS OF ROENTGEN DIAGNOSIS OF PULMONARY LESIONS IN CHILDREN

JOHN F. CAREY, M.D.

JOLIET, ILL.

The roentgenologist belongs to one of the most highly specialized branches of medicine. His place in diagnosis is fully appreciated by both the medical man and the laity. Far too often, however, he is expected to make a definite diagnosis on an examination of a single film of the chest. His opinion, whether it is intended to be a diagnosis or not, is far too often adopted as final in lieu of proper consideration of clinical findings.

The idea that the roentgen ray is a final instrument of precision in the diagnosis of certain diseases is not wholly restricted to the laity. A busy practitioner might easily be inclined to accept an opinion rather than spend the necessary time on repeated physical examinations and careful analysis of history, clinical and laboratory findings.

It is not the purpose of this paper to attempt to enlighten the group on any new advances nor to add anything to the great amount of knowledge and literature already written. It is more with the idea of attempting to show how findings of the two specialties must be correlated in making an intelligent diagnosis and the pitfalls we may encounter if proper stress is not placed upon all available data.

The majority of us are engaged in private practice and lack the facilities of larger medical centers where pathological conferences and instructive staff meetings are an incentive to investigate pathological conditions more thoroughly.

Far too seldom are we able to confer with colleagues in allied specialties or to witness autopsies where we may see before our own eyes the conditions which will explain the symptoms and physical findings.

The lack of these facilities might be remedied somewhat by small groups meeting regularly and difficult cases brought under discussion with current medical subjects. Such has been the practice of our group and it is highly interesting to observe the regard shown for the interlocking ideas of the different specialties.

I speak of this in reference to what I may say

later, on the need of a specialist to be somewhat familiar with allied specialties insofar as those conditions are related to his own branch. It requires an extensive hospital experience for the average physician to be able to interpret a roentgenogram. He should see each film after a thorough study of the patient and attempt to correlate his findings.

Whether the radiologist is dealing with general practitioners or specialists, it is desirable that he know the clinical aspects of the case. He may obtain them from the patient. However, in the case of the infant or young child it may be secured from the mother or if in a hospital, from the record, but best of all from the attending physician. In obscure cases the best procedure is to inform the radiologist on the general aspects of the case and important clinical observations. Then let them decide together on the type of radiologic examination which will be of the most value.

After this has been done a further consultation on the results with the shadowgram before them is necessary. The exchange of ideas will usually be of great value in arriving at a diagnosis.

The method of requiring the roentgenologist to sit before his shadow-box and render a diagnosis is wrong unless he has the cooperation of the clinician whose findings should be just as confirmatory to him as his opinion is to us.

It is the fact that the radiologist is a consultant that increases his responsibility in reporting his findings. The fact that he sees something on a plate that other physicians may or may not observe puts him in a rather insecure position. How easy it is to forget that his observations on the flat plate are only shadows, not real pathological changes, and his interpretations may be just as debatable as other findings. How often the diagnosis of tuberculosis has been made because of increased density in the hilus region with other facts of the patient not taken into consideration.

From the nature of the child and peculiarities of disease in children it naturally follows that the problems of the pediatrician are different from those of the internist. Rarely do we have ulcers or neoplasms in childhood. The chronic changes in lung tissue and results of atheromatous changes are not to be expected in the child. Nutritional diseases, congenital abnormalities and more acute changes in lung tissue and juve-



nile tuberculosis illustrate the problems of the child specialist.

I would like here to illustrate some of the more common conditions one is confronted with in children, especially as regards certain chest conditions. The idea of the examples is to show the confirmatory results obtained by close correlation of the pathologic condition present with all other available data. One of the most frequent problems of diagnosis comes in the question of negative diagnosis of tuberculosis in children.

There is a certain group of active, pale, underweight children with poor or finicky appetites who are a source of worry to the anxious mother. If they have frequent colds or have had a pneumonia or a persistent cough and perhaps run a low-grade temperature, they are almost invariably suspected of being tuberculous. They may even perspire at night as any restless child may and "night sweats" are almost always connected with tuberculosis by the laity.

The mother may take such a child to the roentgenologist before consulting the attending physician. To her his word may be final. If he is not familiar with the more or less normal markings in the chest he may place a worry on the family by a positive diagnosis and the stigma of such a diagnosis may result in serious complications to the child.

These children suspected of being tuberculous but clinically negative, demand a thorough knowledge of the usual findings in the shadowgram together with a knowledge of the structures or pathological processes which are responsible for the shadows. Not infrequently, far more is found clinically than can be demonstrated on the film.

The National Tuberculosis Association, in attempting to enumerate the findings in a normal chest came to the following conclusion—"the normal chest from a radiographic standpoint is subject to such wide limits as to be beyond possibility of exact description."

With this in mind, and absence of exact standards for a normal chest, one can readily realize how futile an attempt at a diagnosis would be without a knowledge of the history, laboratory and physical data.

McPhedran, and more recently, Bigler, studied a large group of children by means of serial roentgenograms and later, in many cases, at necropsy the lungs were minutely dissected with the film before the examiner,

The conclusions were: the hilus shadows are made up for the most part of the bronchi and of blood in the vessels. The pulsation of the blood vessels increased the width of the shadow cast. The size and shape of the hilar shadow is influenced not only by active infection but also by remains of previous infections. The variations may be wide but still be within normal limits.

As regards lymph nodes within the lungs it was found that presence of calcium was the only indication of the locality of the gland. Intrapulmonary non-tuberculous glandular enlargement sufficient to project was not seen although there were many specimens showing large succulent glands due to acute infection. Such glands did not produce shadows which could be differentiated from the main stem vessels and bronchi which cross and surround the glands and there is no reason to suppose they should do so in the living. Furthermore, although many roentgenograms have been made during and immediately after acute, often serious infections, in no case could be found evidence of glandular enlargement due to that infection i. e., calcium free.

When these lymph nodes are large they may cause a pressure atelectasis of the surrounding lung tissue and if there is an extension of the infection there may be consolidation, after this acute stage subsides; there may be resulting scarring. Such changes when they do occur in the upper lobe have a higher incidence in later respiratory infections.

The changes in the hilum occurring after measles, bronchopneumonia, pertussis and repeated infections of the respiratory tract may be confusing but a diagnosis of the shadows cast by these conditions will be in less doubt if one eliminates tuberculosis with repeated tuberculin reactions and consideration of the history, clinical and laboratory findings. Considerable care must be exercised when one considers the significance of a positive diagnosis of the presence of calcified glands. The rounded shadows of equal density occurring in the inner third of the lung field as well as those along the linear markings, are due to blood vessels running parallel to the axial ray and their density depends upon the axial distance of their course.

In making a positive diagnosis of the presence of tuberculous disease of the chest in children the x-ray is essential since 80-90% of the infections are aerogenous in origin. The most important



positive findings are calcification and the rather characteristic mediastinal or hilar shadows. More advanced pulmonary pathology is less questionable.

Calcification is important since most authors agree that it can be considered tuberculous in practically all cases. Rarely does it occur from other causes in children.

A study of the healing or progress of the disease explains the protean manifestations of tuberculous disease in childhood and the images cast by these changes will be much clearer.

When tubercle bacilli are inhaled they gain entrance into the air cells of the lung structure and a pathologic process is set up. This is the so-called primary focus. The disease may be arrested early and this area then becomes calcified. This area may show up later as a small dense shadow about 3 mm in diameter. It is located an appreciable distance from the hilus usually near the pleural surfaces, and moves in a vertical direction with respiration. It is thus differentiated from a hilus structure.

However, before healing of this primary focus has occurred, very often the organisms are carried back by the lymphatics to the hilum area. Glands pick up these organisms, become swollen and congested and may undergo caseation. Here calcification may occur and x-ray examination will demonstrate this, the most frequent type found in children. Unfortunately, the process may not be arrested completely, especially in the younger child. Invasion of the lung by continuity from the hilus produces the triangular shadow of which I will speak later. Here again the tuberculous change may be arrested with resorption, calcification and recovery.

At times around the primary focus or from infection of the hilus, extension to surrounding lung tissue occurs. This results in a conglomeration of tubercles which caseate and break down throwing infective material into the bronchi and bronchioles. This results in a fan-like infiltration of the lungs producing a tuberculous pneumonia. Or again, the infected material may break into small blood vessels to be borne to all parts of the body resulting in the miliary type of tuberculosis. Cavity formation such as seen in adults is seldom demonstrated on the roentgenogram. The type of shadow cast naturally depends upon the stage of invasion. Knowing the seriousness of the possibility of incomplete heal-

ing in childhood naturally makes one timid in making a positive diagnosis without nearly absolute findings.

The rather characteristic hilar shadow mentioned previously is perhaps the most diagnostic lesion from the x-ray standpoint. At least, according to Bigler's report, it was found most frequently. He described the contents of the area as: "hyperplastic caseated lymph nodes with fibrous capsules, fibrous pleuritis with adhesions to the surrounding structures such as spinal column, pericardium, mediastinum and wall of the chest; consolidation of the surrounding lung tissue due to extending infection and calcification or fibrosis of lymph nodes." The rather typical shadow cast by such changes is a triangular reflection with a base superimposed on the median shadow and the apex extending out into the lung field. The shadow is usually hazy and fairly regular in outline as if pointing toward a lobe. If healing takes place and calcium is deposited one sees the areas of calcification and strandlike shadows. If the lymph glands are involved around the trachea there may be an increase in the mediastinal shadow on that side which is represented by a bulging shadow with a fairly definite outline or by a straight one with a frizzy border. When present this is just as diagnostic as the rather characteristic triangular shadow.

Many of the conditions found in the adult chest have their origin in childhood. The type of shadow seen in a pathological chest of an adult may be better explained when one considers the origin of the disease in early life.

Anspach demonstrated this in his work on atelectasis in relation to bronchiectasis. His work is highly important, not only from the standpoint of diagnosis, but also as regards treatment. He concludes that "atelectasis precedes and plays a prominent and most constant role in the development of a common form of bronchiectasis of the lower lobe. Early drainage of the bronchi causing the collapse is essential if the development of the bronchiectasis is to be avoided."

Collapse in itself is highly interesting because it occurs probably a great deal more frequently than we were formerly led to believe. It is usually only by an x-ray examination of the chest we can make such a diagnosis.

The constant triangular shadow noted at the base of the lungs in these cases represents a

lower lobe in various stages of collapse. The diagnosis of foreign bodies causing atelectasis is simplified if the offending body is opaque. However, as happens so many times in children, the obstructing substance is often a plug of mucus and is non-opaque. The diagnosis then must rest on the more or less characteristic appearance of the collapse. The degree of collapse naturally affects the density and appearance of the shadow cast by the offending area.

Clinically, these cases of collapse have been diagnosed as a pneumonia because of the occasional rales, dullness and bronchophony over the area. The displacement of the heart toward the affected side is of the greatest confirmatory diagnostic value. Children perhaps are more prone to develop the condition because of the relative frequency of respiratory infections and in the case of the infant, the prone position and pliant thoracic wall naturally seem to be causative factors. This added to the tendency of the infant and young child to place objects immediately in the mouth and losing control of them thereby permitting them to slide down and be inhaled into a bronchus, explains well why we may expect to encounter the condition more frequently.

While recognizing thus the great diagnostic value of the roentgen ray we should be reminded that it is only an accessory aid and cannot take the place of the clinical history, symptoms, physical findings and repeated tuberculin tests. These when negative in the absence of an overwhelming infection, are most important in ruling out a diagnosis of tuberculosis. In other words, the clinician who undertakes to make his diagnosis purely as a result of x-ray films, no matter how clear they may be or how good he may be at interpreting them, is destined to meet with disaster sooner or later, except in certain well defined conditions.

It must be remembered that like any diagnostic method its value will be measured by the technical skill of the physician in the making of the film no less than his ability to interpret them. The film must be clear and its markings well defined in order that the normal shadows may be distinguished from the pathological. The interpretation of hazy or otherwise imperfect films has as little justification as a physical examination of the lungs without disrobing the patient.

Skill in the interpretation presupposes not

only a familiarity with roentgent shadows but also a working knowledge of the clinical and pathological features of the disease. Unless such knowledge is at the disposal of the examiner he will not be in a position to profit fully from his study of the film, nor will he be able to express in appropriate language the clinical or pathological type of the disease. It is hardly necessary to point out that only a physician is possessed of the knowledge which is a necessary prerequisite for an intelligent interpretation. It is an affront to the clinician to offer him, as is sometimes done, the opinion of a non-medical technician in any case where there is a question of diagnosis. The roentgen diagnosis inspires the mind of the clinician commensurate with the medical knowledge of the roentgenologist.

The special examples I have quoted represent the type of work accomplished in a large institution treating children exclusively. The individual work done on the one hand by a radiologist and on the other hand by a clinician, represents to me the highly satisfactory results accomplished by a correlation of laboratory and clinical findings. In addition, they represent the most frequent problems which have confronted me in chest conditions in children. I have purposely omitted conditions with which I am less familiar or in which there is still an element of controversy as to their relative significance.

In conclusion, the x-ray examination of the chest is almost indispensable to the diagnosis and understanding of pulmonary pathology.

The roentgenologist is a consultant and as such should be advised as to the clinical aspects of the case. The opinion he renders should be based upon proper consideration of these facts.

The average clinician cannot help but be impressed with the occasional absolute findings of the x-ray and the confirmatory or non-confirmatory value of the roentgenogram.

Repeated negative tuberculin tests is the best method in ruling out tuberculosis.

Prognosis and method of treatment is often dependent upon the opinion and advice of the roentgenologist.

Adult pathology in the chest may be explained better in many instances when a better understanding of the progress of the disease from early life is kept in mind.

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## DISCUSSION

Dr. John A. Bigler, Highland Park; I think the collaboration of which Dr. Carey spoke between the pediatrician and the radiologist is quite essential to the intelligent understanding and diagnosis of pulmonary disease. The cases to which I am going to refer deal entirely with tuberculosis. The points we take into consideration are first the family history of contact with the tuberculous individual, usually a member of the family, but frequently it may be the nurse, maid, visitors, etc. Second is the clinical history and also physical examination, both of which are frequently negative. The third is the laboratory examination involving mostly a tuberculin test. We place a great deal of reliance on a positive or negative test. Fourth is the x-ray examination. The x-ray is dependent on the first three, and also in the interpretation of the films the difference in the pathology of childhood tuberculosis and adult tuberculosis must be taken into consideration. In childhood tuberculosis there is involvement of both pulmonary tissue and lymphatic tissues.

Craig D. Butler (Oak Park): I shall confine my remarks to the newborn, inasmuch as the essayist and the first discussant have well covered the subject of chest pathology in older children. The neonatal chest conditions demanding roentgenologic investigation are those which give dullness in the normally resonant areas of the chest, e.g., atelectasis, widened mediastinal dullness due to large thymus or masses in the mediastinum, congenital heart dilatation, and fetal or neonatal pneumonias; less commonly lung cysts and diaphragmatic hernia.

Roentograms illustrative of these conditions were shown on lantern slides.

## INTANGIBLES IN DIAGNOSIS

DON C. SUTTON, M.D.

CHICAGO

Our attendance at medical meetings is mainly for the purpose of learning from the experiences of our fellows, partly through the hearing and discussion of their papers, and, perhaps more, through the friendly intercourse between times. There is nothing that stays the dangers of Chauvinism in the individual physician so much as regular attendance at meetings of the county, state, national and special medical societies.

As practitioners of medicine our most important duties lie in direct contact with the individual patient. Exhaustive studies have been made of the psychological side of the patient,

while but passing attention has been given to the psychology of the patient himself.

I desire to call your attention to certain facts of psychology as they affect the physician in relation to the diagnosis and treatment of disease. As there is considerable difference between the psychological basis of the diagnostician and that of the therapist, it becomes quite important that the physician who practices both diagnosis and treatment of disease, as practically all of us do, should be aware of these differences.

The diagnosis of disease requires the reasoning of the mathematician, the cold gathering and weighing of facts, with no sympathetic emotion as to the gravity or unkindness of the diagnosis as it affects the patient or his friends, or even yourself. A necessary preliminary to diagnosis is the assembly of the data upon which it is ultimately based. The value of these facts must of necessity depend upon the care and thoroughness with which the examination is made. This does not mean, as often appears to be the fashion today, the less diligent method of depending largely, if not entirely, upon reports from the laboratory. In almost all cases a history, carefully taken by yourself, and a thorough and complete examination will yield the essential elements for a diagnosis. If not, you will at least know what additional information is needed. Unfortunately, the great majority of errors in diagnosis are due to failure to make a complete examination; in other words, incompleteness of history-taking or physical examination is the result of pure laziness.

Having completed the examination the ultimate diagnosis depends upon, first, the judgment of the physician (that rather rare birthright so often mistakenly called ordinary horse sense); second, upon the knowledge of the doctor; and, finally, upon his emotional reactions.

*Judgment:* May be defined as the faculty of arriving at a correct conclusion by logical reasoning. Unfortunately, the teaching of logic is becoming more rare, with the result that few know its rules and pitfalls. Every physician should read carefully at least a primer in logic; it may save some embarrassing situations at a later time. Judgment is the most important element in the practice of medicine and is not of necessity an accompaniment of learning. Some of the rarest evidences of judgment may be seen in relatively unlearned individuals, and may be



conspicuous by their absence in the most learned. The man of good judgment rarely errs in diagnosis. Oddy enough, there are times when good judgment is upon the side of neglect in acquiring the data necessary for an absolutely accurate diagnosis; for example, it may be better not to expose the patient to the ordeal of being moved in order to make some special examination desired. A coronary thrombosis may be better diagnosed clinically, than to move the patient for the purpose of making an electrocardiogram. Another instance might be the desirability of x-ray for accurate localization of a lesion; sudden death may occur when a patient with a fractured cervical vertebra is incautiously moved; and one of the worst offences is the danger of inducing a circulatory collapse in a case of pneumonia in the effort to localize the lesion definitely, even when a portable x-ray machine is used.

There are frequent occasions when a complete or even a correct diagnosis may cost too much.

The same need for judgment is always present in matters of treatment. The most glaring illustration is the operative treatment of conditions which are known to be beyond the possibility of either relief or cure. There is also the frequent tendency to treat a patient because something must be done; this is of course at times permissible, but never to the extent of instituting procedures which may contain an element of danger.

*Knowledge:* Obviously the value of the examination and the judgment is immeasurably enhanced by the learning of the physician. Too many excellent students and internes enter practice with the apparent idea that they have completed their learning, and that the remainder of their lives is to be devoted to its application. Dr. Frank Billings, when past 70 years of age, in answer to an inquiry by an attorney as to his business, stated that he had been a student of medicine for the past fifty years. Medical school and internship are at best merely the foundation upon which a lifetime of learning must be built. If one does not continue to learn, unfortunately the unlearning process immediately becomes activated.

Learning may be acquired by the reading of books and periodicals, a most valuable use of one's leisure time. In most communities nowadays, excellent libraries may be built up in the hospital, thus distributing the cost among the

members of the profession. But in addition there should be a fairly active library in either the office or the home. However, while books can hardly be excelled as a method of learning, the so-called bookworm is likely to be an impractical fellow.

An additional and a most excellent method of learning is by the careful study of patients seen in practice. To be of value, records must be kept carefully, and must be supplemented by a correlation of the pertinent literature; also, consultation with our confreres brings additional value to the study of cases. The value of an experience based upon seeing a great number of cases is so great that the opportunity to see patients regardless of the circumstances should never be neglected.

Closely related to the study of the patient is the opportunity afforded for the learning of further facts by attending operative procedures and autopsies. The requirements of hospital boards have greatly increased the numbers of autopsies performed, and every physician should urge, at every opportunity, the performance of such examination in every fatal case. Further, attendance at clinical and pathological conferences greatly increases the opportunity for further knowledge by seeing and learning of the experiences of others.

And finally, a most neglected but extremely valuable method of learning is that of investigation. Ordinarily, investigation is thought of as requiring laboratory facilities with a large number of patients at one's disposal. Corrigan made his most complete study of aortic insufficiency by the observation of five cases, and at no time did he have more than five hospital beds at his disposal. The general practitioner enjoys a most enviable position with regard to clinical investigation. He has a most intimate contact with his patients, knows their families, their environment and their past histories. He has the only opportunity for the extensive study of the very beginnings of disease, and not infrequently the opportunity for the discovery of new ones. The epidemic of encephalitis at St. Louis in 1933 was preceded in 1932 by one at Paris, Ill. Further studies have revealed that isolated cases of this disease occurred in some twenty states over a period of several years before the outbreaks at Paris and St. Louis. How many general practitioners overlooked the opportunity of describ-

ing a new disease? A most valuable contribution to the study of milk sickness was made a few years ago at the Joliet meeting by Dr. Walsh of Ottawa. Dr. Lloyd Arnold tells me that Dr. R. O. Stites of Industry, Ill., has not only studied a large number of cases of bacillus abortus infections, but that he will soon make a valuable contribution as to its mode of transmission.

And we must not forget that the epoch-making studies upon heart disease made by Sir James MacKenzie were made while he carried on a busy practice in an industrial community.

The physician who neglects his learning after the beginning of practice is not only dishonest to himself but is, to say the least, misrepresenting himself to his clientele.

The emotional factor of diagnosis or treatment is much greater than we ordinarily think. The most common effect of emotion is the distortion of judgment when those most intimate or dear to us are ill. How often does a father fail to recognize an early tuberculosis in a daughter, a husband an early cancer in his wife, or a physician an angina pectoris in his best friend? Such misfortunes just cannot overtake those he loves. A physician who has suffered an almost fatal attack of myocardial infarction may refuse subconsciously to recognize either a similar attack or even attacks of angina pectoris when such are seen in his practice.

A most peculiar emotional state that is seen frequently is the fear of telling a patient that there is nothing wrong when some serious disease has been considered, or when the patient is afraid he may have some disease. Whether this is due entirely to the fear that further progress may prove the patient to be correct in his suspicions, or to the fear that his own diagnostic ability may be questioned by a confrere I have been unable to determine.

In the French army during the world war it was found that some 60 per cent. of cases returned from the front as tuberculosis had been wrongly diagnosed. Such over-cautiousness or fear often results in similar mistakes in sending private patients to sanatoria. Heart disease is very often incorrectly diagnosed because there are yet many physicians who believe the presence of a systolic murmur to be diagnostic of valvular disease. Those of course make the error through ignorance. But I have also heard the statement—"I did not think the patient had heart disease,

but was afraid someone else would hear the murmur and make a diagnosis of heart disease."

The patient who has a diagnosis of heart disease does not always realize that only a very small percentage of such cases succumb to sudden death. The girl is advised not to marry or bear children, the boy is restricted in his occupation, the adult is required to retire or readjust his work—all serious changes when necessary, and tragedies when done because of wrong advice by the physician. The incorrect diagnosis of tuberculosis carries almost the same penalty for the individual.

When a patient is not doing well, both internist and surgeon are likely to look elsewhere for the trouble, look for a new disease that relieves them from responsibility for the patient's failure to respond to treatment. The surgeon, after an abdominal operation, looks for pneumonia, or as one did recently, makes repeated blood cultures for a bacterial endocarditis. In the meantime no attention is being paid to the obvious complication at the site of operation. It is more safe to consider all changes in the course of a disease as due to that disease, than to violate the first principle of diagnosis, namely, that a patient rarely has two diseases at the same time.

Both physician and surgeon are often guilty of advising operation simply because there is a condition present that is not normal, although doing the patient no apparent harm. As a consequence, an accidentally found gallstone is removed; the normal residues in the genital tract after child-bearing are repaired. A long list could be retailed. All operative procedures may have complications or even death as a possible result. Are these occasional bad results too great a price to pay for such interference?

Although the emotions must be safely stored in the ice-box when diagnosis is being made, a slight leaven of them during the course of treatment is often more important than the actual therapy itself. Therefore the importance of what the public calls personality in the physician, the confidence, the calmness, and the assurance he passes on to the patient. If more of us had it to a high degree there would be but little of the public's need for the charlatan. Such quality of personality eases the mental reactions of the fatal or prolonged chronic illness, and most important of all, prevents or makes less permanent



the psychologic dysfunctions that follow any illness.

The broad boundaries of medicine make it for us—

A science in the study of disease;

An art in its execution;

And withal, a noble charity in its practice.

30 N. Michigan Ave.

## VITAL STATISTICS AS AN INDICATOR OF ACCURACY OF DIAGNOSIS

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CHICAGO

In 1911, several thousand queries were sent to physicians by the United States Census Bureau in regard to the manner of filling out certain specified death certificates. Of those physicians replying, 57.0% made changes in the cause of death. In 1929, a similar inquiry resulted in a 47.2% change in the cause of death. From 1911 to 1929, therefore, it would seem that there was a 9.8% improvement in the accuracy of death certification. With the advances in medical science resulting in better instruction and improved facilities for diagnosis, such an improvement in the accuracy of determining the cause of death would be expected. Unfortunately, the apparent increase in accuracy in certifying the cause of death as is seemingly indicated by the above queries is in general not true. This is evidenced by the following figures taken from the mortality statistics of the U. S. Bureau of Census for 1914 and 1929 for the registration area:

	1914	1929
Total deaths all causes....	898,059	1,386,363
Total ill-defined causes of		
death .....	7,964—0.89%	24,258—1.75%
Sudden death .....	513	2,391
Ill-defined .....	3,593	5,671
Not specified or unknown	3,858	16,196

During this fifteen year period the increase in inaccuracy of determining the cause of death has been 304.6%. The largest inaccuracy is seen to be in regard to the unspecified or unknown causes. This increase can not be explained on the basis of increase in population since, during this same

interval, the population of the United States in the registration area increased by only 76.2%.

In order to more intimately study this matter, three causes of death were chosen where poor definition is evident in the cause itself or where non-specification could readily play a part. The causes of death selected were peritonitis, pneumonia and sudden death. A comparison was made in these cases for the years 1914 and 1929. Inasmuch as there were only 25 states in the Registration Area in 1914, these same states were used for comparison in 1929. The results are seen in tables 1, 2 and 3.

In Table 1 it is seen that fifteen out of the twenty-five registration states or 60% show a decrease in the number of times unspecified peritonitis is given as the cause of death. This would indicate that in these states there was an increased accuracy in determining the exciting cause of the peritonitis. The average percentage increase in accuracy of diagnosis in these fifteen states would be 40.8%. This is offset by a 40.6% decrease in accuracy on the part of the remaining ten states. Considering the entire twenty-five states from 1914 to 1929, there has been an increased accuracy of 0.43% in the diagnosis of the determining cause of peritonitis.

In Table 2 it is seen that five out of twenty-five states, or 20%, show a decrease in the number of unspecified cases of sudden death. The average increase in accuracy in these five states was 35.7%. Eighteen states, or 72%, show an increase in the number of cases of unspecified sudden death. The average increase in inaccuracy in these eighteen states was 191.1%. Two states, or 8%, showed no change. In considering the total increase in number of cases of unspecified sudden death from 1914 to 1929, the decrease in accuracy of diagnosis would be 366.0%, and the total increase in unspecified cases of sudden death would be 1878.

While the foregoing tables show considerable inaccuracy in determining the cause of death, Table 3 indicates that in pneumonia there has been a definite improvement. Twenty-four states, or 96%, show a decrease in the number of unspecified cases and a resulting average increase in accuracy of diagnosis of 19.4%. Only one state, or 4%, showed a decrease in accuracy and this was only 0.4%. In 1914 the average per cent of unspecified cases of pneumonia was

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22.5%. In 1929 this was only 3.8% or an average increase in accuracy of 18.7%.

In comparing Illinois with the above mentioned registration states in regard to the same causes of death, it is necessary to employ the period 1918 to 1929 inasmuch as Illinois was not admitted as a registration state until 1918. The statistics for Illinois are given in table 4.

TABLE 4  
ILLINOIS

	1918	1929	Differ- ence	Per cent. increase or decrease	Per cent. of accuracy
Unspecified peritonitis.	185	91	- 94	- 50.8	+ 50.8
Total ill—defined.....	508	248	-260	- 51.1	+ 51.1
Sudden death.....	3	22	+ 19	+633.3	-633.3
Ill-Defined .....	365	47	-318	- 87.1	+ 87.1
Unspecified or un- known .....	140	179	+ 39	+ 27.8	- 27.8
Pneumonia:					
Total .....	14455	6090			
Undefined .....	2789	51			
Per cent. of in ac- curacy .....	19.2	0.8			
Per cent increase or decrease in accuracy.....					+ 18.4

It is seen that in Illinois there has been an 18.4% increase in accuracy in determining the type of pneumonia causing death which is almost equivalent to the 18.7% average noted in the twenty-five registration states studied. This increase is less than noted in twelve of these states but is greater than the remaining thirteen. In 1929 there was only a 0.8% inaccuracy which is less than all the states studied excepting Massachusetts which showed a 1929 inaccuracy of only 0.4%. Unspecified peritonitis shows a decrease of 50.8% and an increase accuracy of diagnosis of 50.8% which is considerably higher than the average increase of 0.43% noted in Table 1. Only five of the 25 states exceeded Illinois in increased accuracy of determining the exciting cause of peritonitis causing death. Sudden death in Illinois shows an increase of 633.3% in the number of cases reported and a decrease in accuracy of 633.3% which is considerably higher than the average of 366.0% noted in Table 2. Only two of the twenty-five states studied showed a greater percentage increase in the number of cases in which unspecified sudden death was given as the cause of death. In total undefined diseases causing death there is a decrease in Illinois instead of an increase as noted in the total registration area. In non-specified or unknown causes of

death, Illinois follows the general trend and shows an increase.

## SUMMARY

In a study made of the existing twenty-five registration states in 1914 up to and including 1929 the following comparative facts were elicited in regard to certain selected unspecified causes of death for the year 1914 and the year 1929:

1. There was, during this fifteen year period, a slight decrease in cases of unspecified peritonitis amounting to eight cases or 0.43% and therefore an increased accuracy of diagnosis of 0.43%.

2. During the same period there was an increase in cases of sudden death amounting to 1878 or 366.0%, and a resultant decrease in accuracy of diagnosis of 366.0%.

3. During the same period there was a decrease in the number of cases of unspecified pneumonia and an average increase in accuracy of diagnosis of 18.7%.

In a similar statistical survey made for Illinois but only for the period 1918 to 1929 the following facts were noted:

1. There was a decrease in the number of cases of undefined pneumonia, unspecified peritonitis, and ill-defined causes of death. There was, however, an increase in cases of sudden death and unspecified or unknown causes of death.

2. There was an increased accuracy in the diagnosis of pneumonia of 18.4%, an increased accuracy in determining the exciting cause of peritonitis of 50.8% and an increased accuracy in regard to ill-defined causes of death of 87.1%

3. There was a decreased accuracy in determining the cause of sudden death of 633.3% and a decreased accuracy in regard to unspecified or unknown causes of death of 27.8%.

In 1929 there were 24,258 deaths in the registration area of the United States in which, due to poor definition or lack of definition, it can be concluded that the cause of death was questionable or unknown. This amounts to a 304.6% increase since 1914 which is not comparable with the 76.2% increase in population and is not what would be expected considering the increased facilities for more accurate medical diagnosis.

Although there is evidence of improvement in the accuracy of determining causes of death,

nevertheless, there is still much to be hoped for in this regard.

TABLE 1  
PERITONITIS (UNSPECIFIED)

	1914	1929	Difference	Per Cent Increase or Decrease	Per Cent of Accuracy
Kentucky .....	138	40	-98	-71.0	+71.0
Montana .....	27	8	-19	-70.4	+70.4
Kansas .....	76	27	-49	-64.4	+64.4
Maine .....	26	10	-16	-61.4	+61.4
Virginia .....	74	31	-43	-58.1	+58.1
Missouri .....	99	56	-43	-43.4	+43.4
Pennsylvania .....	277	163	-114	-41.1	+41.1
Vermont .....	22	13	-9	-40.9	+40.9
New Hampshire....	13	8	-5	-38.4	+38.4
Massachusetts .....	72	49	-23	-31.9	+31.9
Michigan .....	153	108	-45	-29.4	+29.4
Indiana .....	74	54	-20	-27.0	+27.0
Connecticut .....	37	30	-7	-16.2	+16.2
Ohio .....	139	120	-19	-13.7	+13.7
Wisconsin .....	36	34	-2	-5.5	+5.5
New York.....	176	192	+16	+9.0	-9.0
Rhode Island.....	10	11	+1	+10.0	-10.0
New Jersey .....	43	52	+9	+20.9	-20.9
Utah .....	4	5	+1	+25.0	-25.0
Minnesota .....	24	30	+6	+25.0	-25.0
Washington .....	10	13	+3	+30.0	-30.0
California .....	59	79	+20	+33.8	-33.8
Maryland .....	18	25	+7	+38.8	-38.8
Colorado .....	10	20	+10	+100.0	-100.0
North Carolina....	22	47	+25	+113.6	-113.6
Total .....	1848	1840	-8	-0.43	+0.43

TABLE 3  
PNEUMONIA

	1914			1929		
	Total	Undefined	Per cent. of inaccuracy	Total	Undefined	Per cent. of inaccuracy
Vermont .....	407	292	71.7	368	17	4.6
Kansas .....	1197	588	49.1	972	20	2.0
Virginia .....	2278	952	41.7	2340	187	7.9
Michigan .....	2751	993	36.0	4235	149	3.5
Maine .....	1119	395	35.2	790	47	5.9
Rhode Island...	846	249	29.4	888	18	2.0
New Hampshire	561	176	31.3	460	24	5.2
Connecticut ...	1856	472	25.0	1458	27	1.8
Pennsylvania ..	12038	2809	23.3	10109	233	2.3
Wisconsin ....	2336	575	24.6	2170	80	3.6
New Jersey....	4329	971	22.4	4045	72	1.7
Kentucky .....	2549	882	34.5	2456	357	14.5
Montana .....	464	130	21.5	431	26	6.0
North Carolina.	709	178	25.1	2706	285	10.5
California .....	2580	445	17.2	4219	111	2.6
Minnesota ....	2155	299	13.8	1906	40	2.0
New York.....	15406	1950	12.6	14055	179	1.2
Indiana .....	2919	351	12.0	2752	99	3.6
Massachusetts..	5610	424	7.5	4777	19	0.4
Maryland .....	2122	142	6.6	2125	28	1.3
Utah .....	467	48	10.2	398	23	5.8
Missouri .....	3674	147	4.0	3723	62	1.6
Washington ...	713	20	2.7	964	19	1.9
Ohio .....	5432	228	1.8	5900	60	1.1
Colorado .....	1032	38	3.6	950	38	4.0
Average .....			22.5			3.8

## DISCUSSION

Dr. John J. McShane, Springfield: In discussing Dr. Gowen's paper I wish to state that I have asked Dr. Woodruff, who is our medical assistant in the Division of Vital Statistics, to discuss this paper at length because of the fact that he classifies all death certificates and he is therefore in a better position to discuss Dr. Gowen's paper than I am.

Relative to the persons whose deaths are classified as "unspecified sudden deaths," I believe many of these deaths so classified are coroner's cases, and since the statutes give the coroner the right to sign death certificates, the cause of death given by him must be accepted by this Department. Then again, in many instances, on death certificates signed by coroners, it will be noted that the cause of death given on the coroner's certificate will be myocarditis or cerebral hemorrhage, and on further investigation you will note that there was no autopsy on the deceased in most instances.

If I remember correctly if the cause of death is given as myocarditis and also a statement that the person had nephritis, this death is charged to nephritis, and where heart conditions are noted on the death certificate along with the statement that the person had nephritis, all these heart conditions are charged to nephritis and that is why we have so many cases of chronic nephritis.

Recently I read a paper by Dr. Swartout in an Eastern Medical Journal. This paper referred to work of Dr. Swartout for his doctors' thesis at Yale. This study

TABLE 2  
SUDDEN DEATH (UNSPECIFIED)

	1914	1929	Difference	Per Cent Increase or Decrease	Per Cent of Accuracy
Colorado .....	1	1	0	0.0	No change
Maryland .....	15	15	0	0.0	No change
Montana .....	9	2	-7	-77.7	+77.7
Massachusetts .....	20	13	-7	-35.0	+35.0
Pennsylvania .....	118	80	-38	-32.2	+32.2
Missouri .....	34	25	-9	-27.6	+27.6
Kentucky .....	32	30	-2	-6.2	+6.2
Connecticut .....	13	14	+1	+7.6	-7.6
Ohio .....	31	34	+3	+9.6	-9.6
Wisconsin .....	11	13	+2	+18.1	-18.1
New Hampshire....	5	6	+1	+20.0	-20.0
New Jersey.....	4	5	+1	+25.0	-25.0
Kansas .....	17	23	+6	+35.2	-35.2
Minnesota .....	17	24	+7	+41.1	-41.1
Rhode Island.....	5	9	+4	+80.0	-80.0
Michigan .....	14	29	+15	+107.1	-107.1
Maine .....	21	44	+23	+109.5	-109.5
New York.....	6	14	+8	+133.3	-133.3
Virginia .....	78	195	+117	+150.0	-150.0
Utah .....	4	14	+10	+250.0	-250.0
Vermont .....	0	3	+3	+300.0	-300.0
Indiana .....	0	3	+3	+300.0	-300.0
California .....	1	4	+3	+300.0	-300.0
Washington .....	3	23	+20	+666.6	-666.6
North Carolina....	31	306	+275	+887.0	-887.0
Total .....	513	2391	+1878	+366.0	-366.0

was very interesting as he compared the accuracy of diagnosis of cases in the New Haven City Hospital as against Cabot's study as to the accuracy of diagnosis in the Massachusetts General Hospital. The study of Cabot was made prior to 1912 and the study of the New Haven cases were made for the same period of time, however, this study included the years 1922 to 1933, inclusive, and fortunately it is for the same number of years but not for the same years. I am including a table taken from the *New England Medical Journal*, giving statistics on thirteen diseases and the percentages of correct diagnosis in each case.

	Massachusetts General Hospital	New Haven Hospital
Pulmonary Tuberculosis.....	59	92
Tubercular Meningitis.....	72	94
Cancer of Esophagus.....	80	90
Cancer of the Stomach.....	72	85
Cancer of the Colon.....	74	83
Brain Tumor, unspecified.....	73	90
Diabetes Mellitus.....	95	100
Simple Meningitis .....	64	96
Cerebral Hemorrhage.....	67	92
Acute Endocarditis.....	39	82
Broncho-pneumonia .....	33	87
Lobar-pneumonia .....	74	99
Cirrhosis of the Liver, unspecified.....	39	73

As Dr. Swartout states in his paper, with x-ray and with the better methods of diagnosis, both in the laboratory and clinically, this might account for the different percentages as to the correctness of diagnosis.

I thought this paper was of interest because we have tabulations from two hospitals in the East, staffed by very capable men, and still there is a difference as to the correctness of diagnosis.

R. H. Woodruff, Springfield: Our statistical data of today is not of much value as an indicator or barometer of accuracy in diagnosis by physicians, for the reason that such data is based upon the opinion of the physician, rather than upon detailed laboratory methods and autopsy findings. While the opinion of physicians who have access to all the modern methods of diagnosis, may in a large percentage of cases, be correct as to the cause of death, this is offset by a much larger number who are forced to rely entirely upon the clinical picture, and whose diagnosis therefore may be entirely wrong.

While advances in medical science and improved methods of diagnosis may have resulted in more accurate statements as to death causes, they should not be over-estimated as a factor in improving the accuracy of our mortality statistics.

The inaccuracy of our present statistics is based, not so much upon the physician's lack of diagnostic ability, as it is upon his brevity and lack of care, and the things he omits, when completing the certificate of death. No matter how much the physician may have determined about the condition that resulted in the death, such knowledge is of no value from a statistical standpoint unless he incorporates sufficient of this in-

formation in the death certificate to allow of accurate assignment of the death cause.

Many death causes are assigned, and the death classified, upon the basis of a *probability* expressed by the physician, and if this were not true the percentage of inaccuracy of our data would be much higher than it is at present.

Our statistics have become more accurate and more dependable for the reason that continued pressure has been made upon the physician over a period of years for more detailed statements concerning the factors entering into the cause of death. Briefly, the percentage of inaccuracy of statistics shown by any state is merely the sum total of those physicians, who being asked for more detailed information concerning the death, either have no opinion to offer, or refuse to answer the query sent to them.

Both the Census Bureau and the individual states should be given credit for lessening the inaccuracy of ascribed death causes, a decrease which they have brought about by pointing out to the physician himself the necessity for more care and detail in making out the death certificate. The effect of this continued effort is now being shown by a decrease in inaccurate and incomplete certificates, such improvement being true of the entire registration area, though of course the improvement is not uniform in all of the states. The individual, checking death certificates for the purpose of assigning death causes, should necessarily be a physician of experience, in order that the death may be classified, when possible, from the information given, or when necessary, intelligent queries may be sent out requesting further information.

Dr. Gowen has used the fifteen-year period between 1914 and 1929, and has cited figures and percentages based upon statistics for those years. Unfortunately the accuracy of data for this interval of years is influenced by the fact that the Manual of the International List of Death Causes was revised in 1920, and numerous changes were made in the classification assignments, as a result of which, classification errors were numerous and the data therefore questionable as to accuracy.

Considering the accuracy of statistics as far as Illinois is concerned, I wish to call your attention to the annual report of the Bureau of Census for the years 1928, 1929 and 1930. These reports are prefaced by the following important statement:

"It is obvious that the cause of death cannot be classified correctly unless it has been stated correctly. It is not stated correctly when one or two of several factors are not given in the physician's report. Again, it is not stated accurately when the physician fails to enter on the death certificate a qualifying term which, if given, would modify the classification of the cause of death."

In 1928 Illinois, with a total of 90,195 deaths, had an inaccuracy in death cause assignments of 1.2% which was the lowest of any state in the registration area. In 1929 Ohio had the lowest percentage with 0.8 while



this state and Maine were tied for second low with 1.2. In 1930 Illinois again showed the lowest percentage of inaccuracy with only 0.5%. This is not an indicator of accuracy of diagnosis, but does indicate accuracy of assignment of death causes based upon the information contained in the certificate.

In May and June of 1934 there were 14,194 deaths from all causes in this state, transcripts of these certificates being sent to Washington as usual—283 of these transcripts, or a little less than .02%, were returned to the Division of Vital Statistics as inaccurate, with a request for supplemental information. Such information was obtained in over 50% of these cases, leaving an inaccuracy percentage for the two months of less than 0.1%.

Cooperating with the Census Bureau and beginning the first of this year, all supplemental information required to make accurate assignment of death causes is being obtained by this state upon receipt of the certificate, and it is anticipated that by this practice the element of inaccuracy will be even more limited than in the past.

Dr. Gowen selected peritonitis, pneumonia and ill-defined deaths, under which he also includes sudden death, and unspecified or unknown deaths, for intimate study, because of the possibility of poor definitions and non-specifications in connection with these diseases. There are, however, several other conditions that could be as well considered, which are the source of trouble in accurately assigning the death cause, such as unspecified tumors, unspecified nephritis, unspecified heart disease, congenital debility, and others which are not acceptable by the Census Bureau as a death cause.

With reference to deaths where pneumonia was concerned in Illinois in 1918 and 1929, it is stated that the inaccuracy percentage was decreased from 19.2 to 0.8.

In 1918 there were over twice as many pneumonia deaths in this state as in 1929 due to the "flu" epidemic, and to the presence of a number of army mobilization camps in the state. This, quite naturally, accounts for the high inaccuracy that year as to the type of pneumonia, for many physicians were at a loss as to the type of pneumonia they were dealing with. In 1929 when the pneumonia deaths had returned to a normal level as to number and type, it was not difficult to obtain a definite statement as to the type, and consequently there was a marked decrease in the percentage of inaccuracy.

With regard to unspecified peritonitis, data in the Division of Vital Statistics in the Department of Public Health for the ten-year interval from 1925 to 1934, shows some increase in such deaths, in spite of our efforts to obtain more specific information concerning the cause. Concerning ill-defined deaths, and unspecified or unknown deaths, there has been no improvement in the accuracy of our data. Such death causes in this state are found, with only rare exceptions, in coroner's cases, and are the result, at least in rural localities, of a mere inquiry by the coroner as to the probable cause, or the result of an inquest composed of laymen, and are not based upon autopsy findings. Consequently, it

is impossible to obtain supplemental information allowing of more accurate assignment of the death cause in these coroner's cases.

"Sudden Death" as a death cause is not accepted in this state and there were no assignments to this title in 1934. The Statutes of Illinois require that "deaths without medical attendance" be investigated by the Coroner, and consequently *some* statement concerning the cause of death is received, even though, it is not always entirely accurate from a statistical view point.

I believe, that the matter of accuracy in mortality statistics depends more upon educating the physician concerning the need for full and accurate statements as to what he considers was the cause of death, than it does upon improving his professional ability, although both goals should be reached if possible.

I further believe, that the accuracy of our mortality statistics cannot be used as an indicator of the accuracy of diagnosis.

Dr. Gowen, (in closing): I am glad that Dr. Woodruff and Dr. McShane brought up the question of status of the coroner's office in the certification of certain deaths. I had the following experience in regard to an individual who had died suddenly. I had not treated the patient for a long period of time and was not willing to assume the responsibility of certifying the cause of death. I turned the case over to the coroner's office. I was called on the phone and asked if there had been anything in regard to the patient's death that suggested an unnatural cause. Upon answering no, I was asked what I thought the patient might have died of. Of course the logical thought in regard to an individual of about 75 years of age would be a myocarditis. In this case there was no postmortem examination, and yet the death was certified by the coroner's office.

Another thing I would like to mention which has always been a sore point with me, is the question of the relegation of death certification to the interne by the attending physician, in hospitalized cases. The doctor in his hurry to depart will tell the interne to fill out the death certificate and sign his (the attending physician's) name. I can not speak for areas outside of Chicago, but there it has been a common occurrence and unquestionably has lead to some egregious errors. My experience in one such instance cured me of that particular habit. The patient died of a chronic myocarditis for which I had been treating her for six months. Being in a hurry I told the interne to certify the cause of death. Unfortunately the interne stated the duration of the myocarditis had been between one and two years instead of six months. The patient had taken out an insurance policy about one year prior to her demise. The insurance company therefore refused to pay the claim on the basis that the patient had the myocarditis when she was insured. This is one instance of what can happen under such conditions and this case caused a good deal of trial and tribulation to the husband before the matter was settled amicably.

I wish to thank the discussants very much. I enjoyed and appreciated their remarks.

ARTIFICIALLY INDUCED MALARIA AS A  
PUBLIC HEALTH HAZARD

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Like the advent of other forms of therapy, the introduction of the artificial production of malarial fever as a means of treating neurosyphilis by Wagner-Jauregg<sup>1</sup> in 1918, created new problems in the maintenance of the public health. The most immediate of these was to prevent the spread of malaria from institutions to the general public. As soon as it was apparent that this form of therapy would be widely adopted, the British Board of Control<sup>2</sup> in 1924 issued a letter to the medical superintendents of all mental hospitals using this form of therapy requesting that all cases infected with malaria be kept in mosquito-proof wards or cubicles until microscopic examination proved that sexual forms of the malaria plasmodium were absent. This board also outlined a uniform and adequate course of quinine therapy for terminating the paroxysms of malaria. The Danish Board of Health<sup>3</sup> in the same year required the licensing of hospitals where the malarial therapy of syphilis was to be used.

As far as we have been able to learn, no such measures have been adopted by any health department in this country. Possibly the reason for this is that there has been no agreement concerning the likelihood of natural transmission of inoculated malaria by mosquitoes. Wagner-Jauregg<sup>4</sup> himself claims that his strain of tertian malaria has lost its power to form gametocytes by continuous passage through human hosts and therefore cannot be carried by anopheline mosquitoes. Careful experiments in his laboratory by Barzilai-Vivaldi and Kauders<sup>5</sup> indicated that mosquitoes could not transmit Wagner-Jauregg's strain to humans.

On the other hand, Plehn<sup>6</sup>, Mari<sup>7</sup>, Bravetta<sup>8</sup> and Mühlens and Kirschbaum<sup>9</sup> all report finding gametocytes after as many as forty human passages of the tertian and quartan plasmodium. Fischer<sup>10</sup> asserted that oöcysts were present in the stomach wall of *Anopheles* mosquitoes which had drunk blood from a person inoculated with the Wagner-Jauregg strain. He, as well as

Yorke and Wright<sup>11</sup> and Van Engel<sup>12</sup>, reported the successful passage of malaria from patients to healthy persons by *Anopheline* mosquitoes. Fischer used the Wagner-Jauregg strain and Yorke and Wright used a strain of *Plasmodium vivax* which they had passed through 53 individuals artificially.

To date only two reports of natural infections due to artificially induced malaria have been recorded. Kling<sup>13</sup> in 1926 reported two cases that occurred in Sweden among patients located in a ward 100 meters from the ward in which patients inoculated with malaria resided. A note<sup>14</sup> in the *Lancet* of July, 1934, mentions another case in which a laborer working near an asylum in Paris where malaria treatment of paretics was being used became infected. His wife who spent her evenings with him and who reported being bitten by mosquitoes many times also became infected and *Plasmodium vivax* was found in her blood.

Our own interest in this problem was aroused late last summer. At that time it was noted that an unusual number of specimens were being examined for malaria parasites at the request of the medical staff of one of the state institutions. Many of these showed the presence of definite parasites and a number more showed bodies which resembled malaria parasites but which were atypical in one respect or another. Most of these specimens had been sent to the laboratories of the State Department of Public Health for confirmation of the findings of the laboratory technician of the institution. That person had been well trained and had had experience in malaria examinations in the tropics. He seemed to be apt to call specimens positive however, without enough evidence and we have therefore considered only those which were found to be positive in our laboratories. Of the specimens from 118 patients submitted to us 25 were positive. Practically all of these were single specimens. Additional specimens would probably have brought other positives to light.

Of the 25 positives, 6 were from patients who had a history of previous inoculation, 11 were from uninoculated patients, 6 from employees and 2 were from persons residing outside but near the institution grounds. One of the latter kept a store across the street from the hospital. The other was the eight year old daughter of one of the attendants who showed symptoms and had malaria parasites in her blood at this time. The

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child had arthritis and was confined to her home.

An examination of the case histories showed that the records of eight uninoculated patients diagnosed by the staff as having malaria were available. One of these developed symptoms the day after admission. The others had resided in the institution for some time. All showed some symptoms of malaria including hyperpyrexia, ranging from 99.4 to 107.2. All showed the presence of malaria parasites in blood films. All were given quinine excepting one who expired before she could be treated. Two others died also. The remainder made a good recovery under quinine therapy.

Of the six employees, three were sick enough to be hospitalized and of these only two records were available. In all three cases malaria parasites were found. One had chills and fever but a subnormal temperature. She recovered when given quinine and atebriane. The other had no chills but a continuous high temperature and nausea until medication was begun. Her temperature dropped from 104.6 in the afternoon to 101.0 the next day with quinine and then back to 104.6 later the same day. She was intolerant to quinine but her temperature became normal and she had remission of symptoms in five days with atebriane.

The three employees who were not ill enough to be hospitalized all showed mild chills and fever, headache, nausea, and weakness. Two of them had previously had malaria, one ten years before and one about forty years before with complete remission at that time. All three made good recovery with quinine. A few other employees, including several physicians and nurses, also felt ill at this time and recovered promptly when they took quinine but their records are not considered because malaria parasites were not unquestionably demonstrated in their blood.

The one person living outside the institution from whom a history was obtained was the bed-ridden child mentioned above who lived 3 blocks from the hospital. She had chills every day with temperature and recovered under quinine therapy.

From the above summary it appears that there was an illness which was probably malaria among uninoculated persons living in and near the institution. The next step was to learn whether anopheline mosquitoes were present

within flying distance and whether they had access to patients who were inoculated with malaria parasites.

Culecine mosquitoes were found to be breeding freely in one of the ornamental pools on the grounds of the institution and one anopheles larva was found in the same pool. A small creek which ran past the corner of the hospital was found by Mr. H. A. Spafford, assistant sanitary engineer of the State Department of Public Health, to contain large numbers of anopheles larvae. They proved to be *Anopheles punctipennis* which are not good carriers of malaria. However, the survey was made in the late fall and it is possible that the *Anopheles quadrimaculatus*, the principal vector of malaria in this region, may have been breeding there earlier in the year. That point will be investigated this summer.

There appears from our study to be little doubt that an accessible reservoir of malaria parasites existed in the hospital. It was discovered that the usual technic for handling cases of induced malaria was as follows: the patients were inoculated with blood from a previously inoculated patient who was showing chills; no examination was made of the first patient's blood to be sure that he was free from the parasites of aestivo-autumnal or quartan malaria; after the desired number of chills, usually ten, were obtained, the patient was supposed to receive 10 grains of quinine daily for two months; in practice he received quinine only until the paroxysms were controlled. This was shown to be insufficient by the fact that three of the six inoculated patients studied had recurrences. One had been inoculated originally in December, 1932, had a recurrence in January, 1933, and another in July, 1934, at which time parasites were found in his blood. Another patient had been inoculated in August, 1933, had a recurrence in November, 1933, and showed parasites in his blood smears in July 1934. Some of the smears showed the presence of gametocytes, indicating that mosquito transmission was theoretically possible. These patients were kept in unscreened quarters at all times.

Another interesting fact was discovered which may account for the fact that malaria seemed to spread in the institution last summer for the first time, although the inoculation method had been used there for some years. It was learned that in the spring of 1934, probably in April,



that the strain of malaria which had been used up to that time had been lost simultaneously in several hospitals. A new strain was obtained from a natural case of malaria. It may be that this strain was more easily spread by mosquitoes. By the time that we were called into the case the old strain had been recovered and was being used although the records were somewhat confused and any one of three strains might have been in use.

In view of the conflicting reports in the literature, it remains to be proved that malaria can be transmitted from inoculated patients to well persons under controlled conditions. We began such an experiment last fall but, due to inexperience in raising mosquitoes, we lost them before we could use them. No more could be obtained during the winter but plans are under way to continue work on this phase of the problem this summer.

The following conclusions may be tentatively drawn: There appeared to be cases of malaria, largely of atypical nature, among uninoculated patients and employes of a state hospital; a reservoir of potential infection probably existed among inoculated patients incompletely treated to rid them of malaria parasites; smears of these patients' blood revealed gametocytes capable of being transmitted by mosquitoes; anopheline mosquitoes were breeding within flying distance of the reservoirs of infection; and finally, neither inoculated patients nor uninoculated patients were protected by screens.

Pending absolute proof that inoculated malaria may be transmitted by mosquitoes it is recommended that the following measures be used to prevent possible outbreaks of malaria due to this cause: no blood be transferred from patient to patient until several microscopic examinations prove that only tertian parasites are present; that all inoculated patients be protected against mosquitoes by screening until quinine therapy causes the parasites to disappear from the peripheral blood; that mosquito breeding within flying distance of any hospital using this form of therapy be suppressed; that all inoculated patients be given the "standard" course of quinine therapy and that they be found to be free of malaria parasites on at least three successive examinations before being discharged from treatment; and finally, that induced malaria be used only in hospitals properly equipped for that pur-

pose. The last statement will become even more important if malaria therapy is adopted more generally as a mode of treatment as it appears likely to be.

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## DISCUSSION

Dr. Howard Gowen, Chicago: Following the introduction of artificially induced malaria as a form of therapeutics for general paralysis of the insane by Wagner and Jauregg, the new potential public health hazard thus created was soon appreciated as is evidenced by the early circularization of mental hospitals by the British Board of Control, Danish Board of Health and the U. S. Public Health Service in regard to measures that should be employed to prevent unwarranted dissemination of this disease. That eventually evidence would present itself signifying an apparent outbreak of malaria as a result of this form of treatment was inevitable and such an instance has arisen in our State of Illinois.

For the purpose of determining whether there had been similar experiences elsewhere and with the additional idea of obtaining information as to the mode of handling of patients so treated, a questionnaire was sent to sixteen mental hospitals in this country. Two of these hospitals did not employ this form of therapy and the remaining fourteen did employ it. The interrogations made and the information elicited are as follows:

### 1. How are the patients inoculated?

In thirteen the donor to patient method was employed and in one case in Texas, mosquitoes were used.

### 2. What type of malarial parasite is employed?

In eleven hospitals the benign tertian was used, in two hospitals the benign tertian was used for whites and the quartan for colored, and in one the quartan type was employed.

### 3. After inoculation, are the patients isolated from other patients or are they allowed to mingle promiscuously with the others?

In seven hospitals there was no isolation, in three hospitals isolation was carried out and in

four, isolation was instituted only after the chills had begun.

4. In the warm weather, are these inoculated patients permitted to go out on the sanitarium grounds?

In twelve hospitals, the patients were not allowed outside of the ward, and in two cases they were allowed on the sanitarium grounds. (Alabama being one of these.)

5. Are the quarters of the patients inoculated with malaria screened?

In 12 hospitals the quarters were screened. In most of these cases ordinary screens were employed. In one case in Texas, double screening was employed. In two cases there was no screening.

6. After the result is obtained or not obtained from such inoculation, what medication is employed to rid the patient of the parasite?

Seven hospitals employed quinine only, two hospitals quinine, plasmochin or atabrin, two hospitals neosalvarsan and one tryparsamide and mercury salicylate.

7. After receiving anti-malarial treatment, what is the basis for determining whether the patient is completely rid of the parasite or not?

In seven cases release was based on blood smears and clinical improvements, in four cases primarily on clinical improvement and occasionally blood smears, and in three cases only on clinical improvements.

8. Have any cases of malaria occurred in other patients or attendants other than those who received the artificial inoculations?

All fourteen hospitals reported that no secondary cases had occurred traceable to the inoculated patients. Of course in the southern states, this would not be as significant.

While it is true that seemingly no malaria occurred in the queried institutions in those uninoculated, and while it is true that a survey of the literature by the U. S. Public Health Service up to 1933 revealed the occurrence of only two cases of natural infection from induced cases, nevertheless the hazard remains and the regulations restricting its spread may well be improved in some instances. The danger would seem to be not in regard to the patients actively experiencing the disease, because they are kept in bed, but more in regard to those in whom the course of treatment has been stopped. In the latter, release after too little post-malarial medication and with too little evidence of freedom from the parasite, could well result in a satisfactory reservoir for the proper type of anopheles mosquito. While it is true that benign tertian malaria is employed in most instances and in its asexual form, nevertheless true gametocytes may appear after long intervals. Yorke and Wright successfully experimentally transferred a strain of *Plasmodium vivax* on humans using the *Anopheles maculipennis* after the 53rd induced passage. There is inclined to be too much of a sense of security on the part of those employing malaria in patients because of the fact that the plasmodium in its

asexual form can not be transmitted by the *Anopheles*. It should be borne in mind that sexual forms may appear. The mere absence of sexual forms on blood smears while asexual forms are still present does not warrant any relaxation in regard to the restriction of the patient. He is still potentially a malarial threat.

Dr. Shaughnessy, in closing: Of course, as soon as we thought this possible hazard existed we got in communication with the hospitals concerned and asked them to carry out certain regulations which have been outlined. It may be of interest to know that we believe that these are being carried out in some of the hospitals because we have had requests from several State hospitals and from one federal institution in this State using this form of therapy for an examination of blood smears prior to passing on the parasites. It indicates, in other words, that some attention is being paid at least to this part of the problem.

There is one other problem in connection with this which we haven't touched on, and that is the difficulty of screening these individuals. Most of the hospitals using this form of therapy claim they don't have the funds for screening all of their windows. It isn't the primary cost that they are worrying about, but the fact that the patients, of course, in such institutions are very apt to knock the screens out very readily. They say this would entail an enormous expense. However, I think it would be easily possible for any institution to keep the inoculated patients in a hospital on the grounds where they could be kept under mosquito-proof screens. It would also be possible in most instances for the hospital to eradicate mosquito-breeding places within flying distance of the hospital.

## STATISTICAL STUDY OF CORONARY DISEASE. A REVIEW OF 6754 NECROPIES.

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CHICAGO

This paper is a statistical study of severe coronary disease in 612 cases selected from 6754 consecutive necropsies performed at the Cook County Hospital, from 1929 to 1934 inclusive. The following study constitutes the personal observations of the writer, and no attempt has been made to review or discuss the present extensive literature relative to coronary disease. The analysis is concerned with the following points of interest: (1) Relationship of coronary sclerosis to hypertrophy of the heart in the cases in which the hypertrophy of the heart is the essential anatomical findings. (2) Coronary sclerosis without occlusion of the lumen as the cause of death or as an incidental finding. (3) Incidence of

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so that an old inflammatory process can be excluded. pericarditis or fibrous obliteration of the pericardial sac.

TABLE 2. MYOCARDIAL CHANGES WITHOUT CORONARY SCLEROSIS. 17 CASES.

Age				Race		Sex		Hypertrophy of Heart		Type of Myocardial Lesion		Syphilis	Pericarditis	
No.	30-40	41-50	51-60	61.70	W	C	M	F	Moderate	Marked	Marked Fibrosis			Myomalacia
7	4	3	3	8	9	17	..	13	4	12	6	1	2	
%	41.18	23.54	17.64	17.64	52.94	47.06	100.00	..	76.47	23.53	70.62	29.38	5.89	11.77

Note: In one of the cases, the myocardial lesion showed a marked fibrosis and a myomalacia.

3. CORONARY SCLEROSIS WITHOUT OCCLUSION OF THE LUMEN

4. CORONARY OCCLUSION DUE TO ATHEROMATOUS PROCESS, THROMBOSIS OR EMBOLISM IN FIFTY-SEVEN CASES

There were 135 cases of severe coronary sclerosis without occlusion of the lumen. In 99 cases, the coronary sclerosis was an incidental finding, death being due to carcinoma, encephalomalacia, cerebral hemorrhage, cerebral thrombosis, pulmonary tuberculosis and pneumonia, in the order of their frequency. Ninety-four cases or 69.6% were over 60 years of age; 31 cases or 22.96% were between 51 and 60 years. In this group there were 96 males and 39 females. As to race, 113 were white and 22 colored.

Sclerosis was found more frequently in the coronary arteries than in the other medium sized arteries of the same individuals; 113 cases or 83.7% showed a moderate to a marked degree of generalized arteriosclerosis, whereas in 16.3% of the cases the other medium sized arteries were spared.

The heart was found hypertrophic in 71 cases or 52.59%, varying from a moderate to a marked degree. The myocardial changes were as follows: marked fibrosis in 28 cases or 20.74%, myomalacia in seven cases or 5.18%; six cases or 4.78% showed aneurysm formation of the wall of the left ventricle (see Table 3).

In 47 of the 57 cases the occlusion of the coronary artery was the cause of death, while in the remaining ten cases the coronary occlusion was an incidental finding, death being due to carcinoma, diabetes mellitus, lobar pneumonia, encephalomalacia, or arteriosclerotic gangrene of the extremities (see Table 4).

Coronary occlusion was caused by severe atherosclerosis in 25 of the cases or 43.85%. In some cases in addition to the above process a recent thrombosis of a second branch was found.

There are a group of cases in which the occlusion of one or more branches of the left or right coronary arteries is so gradual that sufficient time elapses for the collateral circulation to develop, and maintain life. In these cases the myocardial damage, results in a marked scarring, with eventual subsequent formation of an aneurysm. It is also interesting to note that in this group of cases, clinically, no mention is made by the patient of an attack during the period of gradual occlusion of the coronary artery, which is discovered at autopsy. One may term such a condition as a silent progressive

TABLE 3. CORONARY SCLEROSIS WITHOUT OCCLUSION OF THE LUMEN IN 135 CASES

Age					Sex		Race		Myocardial Changes					
31-40	41-50	51-60	61-70	71+	M	F	W	C	Hypertrophy of the Heart	Sclerosis in other Arteries	Marked Fibrosis	Myomalacia	Aneurysm	Syphilis
No. 2	8	31	47	47	96	39	113	22	Moderate 56	Moderate 69	28	7	6	12
									Marked 15	Marked 44				
									Moderate 41.48	Moderate 51.11				
% 1.48	5.92	22.96	34.82	34.82	71.11	28.89	83.7	16.3	Marked 11.11	Marked 32.6	20.74	5.18	4.78	9.55

Note: In 99 of the 135 cases, the coronary sclerosis was an incidental finding, death being due to carcinoma, encephalomalacia, cerebral hemorrhage, cerebral thrombosis, pulmonary tuberculosis, pneumonia, etc.

Syphilis was noted in twelve cases or 9.55% and eleven cases showed either acute fibrinous coronary occlusion due to an atheromatous process. Not infrequently such patients with

TABLE 4. CORONARY OCCLUSION DUE TO ATHEROMATOUS PROCESS, THROMBUS, EMBOLUS, IN 157 CASES.

											Myocardial Changes								
Age						Sex		Race		Intensity of Coronary Sclerosis	Type of Occlusion	Hypertrophy of Heart	Marked Fibrosis	Myomalacia	Aneurysm	Sclerosis in other Arteries	Syphilis	Pericarditis	
21-30	31-40	41-50	51-60	61-70	71+	M	F	W	C										
No.	2	2	12	13	16	12	38	19	46	11	Moderate 7	Atheromatous Process 25 Recent Thrombosis 19 Organized Thrombosis 11	27	17	24	15	29	5	16
											Marked 35	Embolus 4 Atheromatous Process 43.85 Recent Thrombosis 33.34 Organized Thrombosis 19.3							
%	3.5	3.5	4.06	22.8	28.08	21.06	66.66	33.34	80.7	19.3	Moderate 15.78		47.36	29.82	42.1	26.31	50.87	10.6	28.08
											Marked 61.4	Embolus 7.0							

Note: In 47 of the 57 cases the occlusion of the coronary artery was the cause of death, while in the remaining 10 cases the coronary occlusion was an incidental finding, death being due to carcinoma, diabetes mellitus, lobar pneumonia, encephalomalacia, or gangrene of the extremities.

occlusion of one of their coronary arteries, will develop an acute coronary thrombosis in another branch followed by myomalacia, pericarditis, mural thrombi, occasionally rupture of the wall of the heart and sudden death. Nineteen cases or 33.3% showed recent coronary thrombosis. In eleven cases or 19.3% the thrombosis became organized, even recanalized. Coronary occlusion due to an embolism was found in four cases or 7%, all secondary to a malignant vegetative endocarditis.

The anterior descending branch of the left coronary artery was most frequently affected. It was involved in 50% of the cases while the circumflex branch of the right coronary artery was second in frequency, and occurred in 26.3% of the 57 cases.

In this series of 57 cases the myocardium showed severe alterative changes in 56 cases. Marked fibrosis was present in 17 cases or 29.82%; myomalacia in 24 cases or 42.1%; and aneurysm formation in 15 cases or 26.3%.

Syphilis was present in only five cases or 10.6%. There were 16 cases or 28.07% that showed either an acute or chronic pericarditis.

Discussion. In a series of 6754 necropsies, 612 cases were selected to study coronary disease and were reviewed from a pathological aspect only (see Table 5).

There were 403 cases in which hypertrophy of the heart was the essential anatomical finding. Severe coronary sclerosis was present in only 155 cases or 38.46%, thus its incidence in hypertrophy of the heart is not unusually high.

There were 17 cases of severe myocardial

TABLE 5. SUMMARY OF CASES IN 6754 AUTOPSIES

	Number of Cases	Percent of Total Autopsies
Hypertrophy of the Heart.....	403	5.9
Coronary Sclerosis without Coronary Occlusion as an Incidental Finding.....	99	1.5
Coronary Sclerosis without Occlusion of the Lumen as the Cause of Death.....	36	0.53
Myocardial Changes without Coronary Sclerosis .....	17	0.25
Coronary Occlusion as the Cause of Death .....	47	0.69
Coronary Occlusion as an Incidental Finding .....	10	0.15
Total .....	612	9.02

changes characterized by marked fibrosis, and myomalacia without any coronary sclerosis, narrowing of the lumen or occlusion. Anatomical evidences for the myocardial changes could not be demonstrated. There were no valvular changes or syphilitic process to explain the changes.

Coronary sclerosis without occlusion of the lumen occurred in 135 cases, and in 99 cases the coronary sclerosis was an incidental finding, death being due to some unrelated condition. In 83.7% of the cases there was also in addition a severe sclerosis of the other medium sized arteries. This group also contained 41 cases with severe myocardial changes, without occlusion of the lumen of the coronary arteries.

Coronary occlusion due to an atheromatous process, thrombosis, or embolus as the cause of death was found in 47 cases and in ten cases it was an incidental finding. The thrombus may become organized and later recanalized. If the occlusion is gradual, sufficient time elapses for

the collaterals to develop and the patient recovers and may not show any symptoms referable to his heart. The myocardium becomes severely scarred, and an aneurysm may form. As stated such a patient may not show any clinical manifestations of coronary occlusion, and may die from an acute coronary thrombosis in another uninvolved branch of one of the coronary arteries, or some other condition unrelated to the changes of the heart.

CONCLUSION

A statistical study of coronary disease is made based upon a review of 6754 necropsies; 612 cases were selected and divided into four groups as described (see Table 6).

Coronary sclerosis occurred in 54.2% of the 612 cases. The heart was found hypertrophied in 84.6% of the cases.

Syphilis determined from anatomical changes or serological findings was noted in 15% of the cases. Two-thirds of the group were males.

The myocardium showed marked degenerative changes in 153 cases or 23% of the 612 cases, and not infrequently the coronary arteries were unchanged.

Clinically coronary occlusion may be a silent condition unrecognized during life.

TABLE 6. ANALYSIS OF 612 CASES.

Group No.	Sex		Race		Coronary Sclerosis (severe)	Hypertrophy of Heart	Syphilis	Myocardial changes			
	Cases	M	F	W	C			Pericarditis	Marked Fibrosis	Myomalaciae	Aneurysm
1	403	257	146	226	177	155	403	74	38	27	4
2	17	17	...	8	9	...	17	1	2	12	6
3	135	96	39	113	22	135	71	12	11	28	7
4	57	38	19	46	11	42	27	5	16	17	24
Tl.	612	408	204	393	219	332	518	92	67	84	41
%	...	66.6	33.4	64.2	35.8	54.2	84.6	15.0	10.9	13.7	6.7

BLOOD GROUPING TESTS IN THE MEDICOLEGAL DETERMINATION OF NON-PATERNITY

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The rule in law established by the courts of this country, that an accused person shall not be required to give testimony against himself has frequently been a bar to the application of

medical science in the adjudication of court cases. During recent years the courts have taken a more liberal view of this rule, holding that in certain instances the strict adherence to it has been contrary to public policy. Thus it has been held that requiring a man to give impressions of his fingerprints for identification purposes did not materially jeopardize his legitimate interests. Later the courts in certain jurisdictions have required the plaintiff in a damage suit to submit to a medical examination to determine the nature and extent of the alleged disability, and even to submit to the taking of blood for serologic examination. It is interesting to note the variation in this rule with respect to the determination of non-paternity by means of blood grouping characteristics.

TABLE 1

Relationship of Main Blood Grouping Characteristics Existing Between Child, Mother, and Father,

Child	Mother	Father	
		Possible	Excluded
O	O	O, A, B	AB
O	A	O, A, B	AB
O	B	O, A, B	AB
A	O	A, AB	O, B
A	A	O, A, B, AB	None
A	B	A, AB	O, B
A	AB	O, A, B, AB	None
B	O	B, AB	O, A
B	A	B, AB	O, A
B	B	O, A, B, AB	None
B	AB	O, A, B, AB	None
AB	A	B, AB	O, A
AB	B	A, AB	O, B
AB	AB	A, B, AB	O

TABLE 2

Relationship of Landsteiner's Blood Sub-Groups (Agglutinogens) in Child, Mother, and Father.

Child	Mother	Father	
		Possible	Excluded
M	M	M, MN	N
M	MN	M, MN	N
N	N	N, MN	M
N	MN	N, MN	M
MN	M	N, MN	M
MN	N	M, MN	N
MN	MN	M, N, MN	None

The present status of our knowledge concerning the four main blood groups is so well known as to require no comment here. Further, it may be stated that the rules of inheritance of these blood grouping characteristics as developed by von Dungern and Hirszfeld<sup>1</sup> and modified by Bernstein<sup>2</sup> is founded upon such conclusive evidence that its acceptance by the medical profession has been universal. By comparing the blood groups of the child, mother and supposed father, a falsely accused man has

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From the Department of Toxicology, Northwestern University Medical School and the Coroner's Laboratory of Cook County.



about one chance in six of proving that he could not have been the father of the child.<sup>3</sup> The addition by Landsteiner of three additional agglutinin characteristics (M, N and MN) and their utilization in tests of non-paternity increases a falsely accused man's possibility of exoneration to one chance in three or four.<sup>4</sup>

It must be borne in mind that blood grouping tests can never prove that a man is the father of a child; they may prove that he could not be the father in a limited number of instances.

The following decisions have been handed down by our courts in cases involving this use of blood grouping.

*State (of South Dakota) v. Damm.*<sup>5</sup> This was a case of a man charged with rape of a minor foster daughter. The daughter later bore a child. The defendant petitioned the court to order blood grouping tests of the infant, mother and himself to enable him to prove non-paternity. This was denied by the court on the ground that the proposed test had not been established as thoroughly reliable. On appeal to the higher court, this refusal to order the blood grouping test was held not to be an abuse of the lower court's discretion.

*Commonwealth (of Pennsylvania) v. Zamorelli.*<sup>6</sup> Defendant was charged with bastardy. To combat this charge he called as a witness a medical expert who had made blood grouping tests of the child, mother and defendant. He testified that as a result of his tests, it could be positively stated that defendant could not have been the father of the child. There was no medical testimony offered by the prosecution to rebut the blood-grouping evidence, but in spite of this fact, the jury returned a verdict of guilty. On appeal, the higher court set aside the verdict and granted a new trial in order to give the prosecution an opportunity to confirm the blood grouping test. No record of the new trial is to be found in the case reports.\*

*Buschel v. Manowitz.* This was a suit for damages for an alleged carnal assault. Plaintiff later bore a child supposedly as a result of the assault. Defendant moved the trial court to require plaintiff and her child to submit to blood grouping tests to enable him to prove his innocence. The court ordered the tests but an appeal was taken from the court's ruling. The court of appeals upheld the decision of the trial court, whereupon an appeal was taken to the Appellate Division of the New York State Supreme Court. This court reversed the rulings of the lower courts not on the basis that the test was unreliable but on strictly legal grounds. They reasoned that this being a suit for damages between the man and woman, the child was in no way a party to the suit; and therefore the court had no juris-

diction over the child to compel it to submit to the test. Without the blood group of the child, the test on the mother would be useless for determining non-paternity.

*Taylor v. Diamond.*<sup>8</sup> Was a similar case in which the higher court held that "in the absence of statutory authority, the court of Special Sessions in a paternity proceeding may not compel blood tests to be taken.†

*Commonwealth (of Pennsylvania) ex rel. Antoinette Visocki v. Frank Visocki.*<sup>9</sup> The action was for non-support. Testimony brought out that the prosecutrix (age 20) and the defendant (age 42) were married on May 9, 1933. Testimony as to intercourse was in conflict, the husband stating that he had never had intercourse with his wife because on the evening of their wedding day he heard that she was pregnant. The wife testified that she had intercourse with her husband only once, on May 13. They continue to live together for four months. It was conceded that the child was born in wedlock seven months after conception, presumably as the legitimate offspring of the parents. To overcome this presumption, the defendant introduced medical testimony to show that there was no strain of his blood in the child and that he was not the child's father. Two physicians testified in his behalf that they had both conducted blood grouping tests of the mother, child, and defendant father; that the mother and child both belonged to Group O of the Landsteiner scale; that the defendant belonged to Group AB of the Landsteiner scale; that if the child in this case (Ethel Visocki) was the child of the prosecutrix, Antoinette Visocki, the defendant, would not and could not be the father of the child. To contradict this evidence, the Commonwealth called another physician to testify in regard to the use of blood tests in determining paternity. This witness stated that, "In my opinion, no such test is at all conclusive and as I see it in my reading of the literature and contact with my brother physicians, that no such theory or opinion is accepted; that in my opinion such a set of circumstances, the mother Group O, the child the same group, and the father, Group AB, means nothing—not capable of any proof. These assertions regarding blood and blood typing in relation to paternity are theoretical." The court in commenting upon the testimony stated, "In our opinion, comparing the positive, not to say aggressive, circumstantial, and particular testimony of the witnesses for the defendant with that of the witness for the prosecution, which seems to us to be more general, lacking in individual and concrete authority for his position, the strong weight of the evidence uphold the contention of the defendant, who has sustained the burden which the law casts upon him, he being the husband of the woman who gave birth in lawful wedlock to a child, that he is not the father of the child." The case was dismissed.

Wiener (loc. cit. page 191) cites a case in the court of Common Pleas of New Haven, Conn., in 1933. An

\*This probably is the case referred to by Wiener "Blood Groups and Blood Transfusion" Springfield and Baltimore, 1935, page 200, in which a new trial was not necessitated.

†It is interesting to note that the New York Legislature has enacted (March, 1935) a statute, approved by the governor, which empowers the courts of the State to order blood tests in lawsuits at their discretion.

unmarried woman accused a man of being the father of her child. Blood grouping tests showed the woman to belong to Group O, the child to Group B and the alleged father to Group A. When the impossibility of such a combination was pointed out to the woman, she withdrew her charge.

The Chicago newspapers of May 3, 1935, report the case of *Mrs. Olga Blum v. Louis Blum* in which Superior Court Judge F. B. Allegetti ordered blood grouping tests to settle the question of paternity of the child in question.

These cases indicate the general trend toward the acceptance of these tests by the courts of this country just as they have already been accepted by the courts of practically all European countries as well as Japan and Brazil. It is hoped that the grouping tests for use as evidence in court will be performed only by qualified serologists. Pseudo-agglutination results in the hands of unskilled workers may not only work grave injustice but would tend to bring a reliable medicolegal technique into disrepute.

#### DISCUSSION

Dr. Wm. C. Woodward, Chicago: Arguments concerning the admissibility or inadmissibility in court of evidence based on blood grouping tests represent simply a stage in development that precedes the establishment of the admissibility of evidence based on any new scientific procedure. Similar arguments preceded the determination of the admissibility of evidence based on the serologic examination of supposed blood stains, on the study of finger-prints, and on roentgenologic studies. The admissibility of evidence derived from technical ballistic examinations and from the so-called lie detector is now in the same stage of juridical study and evolution. The rule with respect to the admissibility of all such evidence has probably been nowhere better stated than it was by the Court of Appeals of the District of Columbia, on December 3, 1923, as follows:

"Just when a scientific principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized, and while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs.

"We think the systolic blood pressure deception test has not yet gained such standing and scientific recognition among physiological and psychological authorities as would justify the courts in admitting expert testimony deduced from the discovery, development, and experiments thus far made." *Frye v. United States*, 54 App. D. C. 46; 293 F. 1013; 34 A. L. R. 145.

The decision of the Court of Appeals of the District of Columbia, in 1923, was followed by the Supreme Court of Wisconsin, January 10, 1933, when the court held that it was not error to refuse to admit evidence showing the results of an examination made by the so-

called lie detector, when the Wisconsin court suggested:

"The present necessity for elaborate exposition of its theory and demonstration of its practical working, in order to convince the jury of its probative tendencies, together with the possibility of attacks upon the soundness of its underlying theory and its practical usefulness, may easily result in a trial of the lie detector rather than the issues in the cause." *State v. Bohner*, 246 N. W. 314.

These two cases have been cited to illustrate the general principles governing the admissibility of testimony such as that now under consideration. The admissibility of evidence based on examinations to determine blood grouping has been passed on directly by appellate courts in South Dakota and New York.

The Supreme Court of South Dakota, December 29, 1933, affirmed a judgment of the trial court excluding evidence of blood grouping to aid in proving paternity or non-paternity. The court said:

"Without endeavoring to arrive at any decision on other questions involved in connection with this particular claim of error, we hold that the learned trial judge did not abuse his discretion in refusing to order the blood test requested by appellant. We base such holding specifically upon the proposition that it does not sufficiently appear from the record in this case that modern medical science is agreed upon the transmissibility of blood characteristics to such an extent that it can be accepted as an unquestioned scientific fact that, if the blood groupings of the parents are known, the blood group of the offspring can be necessarily determined, or that, if the blood groupings of the mother and child are known, it can be accepted as a positively established scientific fact that the blood group of the father could not have been a certain specific characteristic group. In other words, we think it insufficiently appears that the validity of the proposed test meets with such generally accepted recognition as a scientific fact among medical men as to say that it constituted an abuse of discretion for a court of justice to refuse to take cognizance thereof, as would undoubtedly be the case if a court today should refuse to take cognizance of the accepted scientific fact that the finger prints of no two individuals are in all respects identical." *State v. Damm*, 252 N. W. 7.

Under date of February 20, 1934, a South Dakota correspondent reported that the Supreme Court had given a rehearing in this case but on what grounds was not stated. No record has been found in the Reporter system, however, to show that a rehearing was ever granted or held or to show any action whatever by the court since the decision quoted above was given.

In New York, the supreme court, King's county, January 2, 1934, in a carefully considered opinion in a civil action for damages for alleged assault by the defendant, resulting in the birth of a child to the plaintiff, held that the defendant was entitled to require the plaintiff and her child to permit the taking of specimens of blood for examination by the blood grouping test, to determine paternity. *Beuschel v. Manowitz*, 271 N. Y. S. 277.

But the supreme court, appellate division, second department, May 25, 1934, reversed the order of the trial court, both on the law and on the facts, holding that the New York statute relating to the physical examination of a plaintiff was inapplicable. The court said:

"This child is not a party to this action; and while a court of chancery has an inherent jurisdiction over the welfare of an infant, a ward of the court, nothing in this case indicates in the slightest that the welfare of this infant is in any wise involved or that the blood test could possibly be beneficial to the



infant. Section 306 of the Civil Practice Act has no application to the facts of this case." *Beuschel v. Manowitz*, 272 N. Y. S. 165.

The fact that this reversal was based on the court's construction of the New York statute limits its applicability as a precedent.

While the technical correctness of the court's decision with respect to the child was clear, the decision in so far as the mother is concerned would seem to be inconsistent with the rule laid down in a somewhat similar case in which evidence based on the examination of specimens of blood was desired, not for the purpose of proving paternity or identity but for the purpose of proving the presence or absence of disease. In *Hayt v. Brewster, Gordon & Co., Inc.*, the supreme court, special term, Monroe county, July 11, 1921, in a personal injury case, held that the New York statute authorizing physical examination did not cover blood tests (189 N. Y. S. 907). This decision was reversed, however, by the supreme court, appellate division, fourth department, November 30, 1921 (191 N. Y. S. 176). The court said:

"The common law rule in this state has, however, been abolished by the enactment in question for the very purpose of making that lawful which was theretofore unlawful, to permit a physical examination of a plaintiff where none was permitted before . . .

"It is urged, however, that there have been cases where infection has been caused by a needle puncture, such as is required to draw blood sufficient for a blood test. That is undoubtedly true, and in those cases the reason for the infection has been said to be the fact that the needle used was not properly sterilized, or that the skin had not been properly cleansed. Section 873 provides:

"Such examination shall be had and made under such restrictions and directions as to the court or judge shall seem proper."

The court or judge granting the order is given full power to direct how the examination shall be made, and, upon the request of the plaintiff, may throw around the examination all known safeguards. The sample of blood should be taken by a physician selected by the plaintiff, if he so desires. It does not seem to me that under such circumstances it can be seriously urged that there is such danger that a court or judge is without jurisdiction to grant an order under section 873 for a blood test." *Hayt v. Brewster, Gordon & Co., Inc.*, 191 N. Y. S. 176.

Possibly as the result of the situation created in New York by the recent decision relative to the admissibility of evidence based on blood grouping the New York legislature at its recent session enacted three statutes to govern the matter in the future. One amends the civil practice act by providing:

"Wherever it shall be relevant to the prosecution or defense of an action, the court, by order, shall direct any party to the action and the child of any such party to submit to one or more blood tests, to be made by duly qualified physicians and under such restrictions and directions as to the court or judge shall seem proper. The order for such blood tests may also direct that the testimony of the persons so examined may be taken by deposition pursuant to this article." *Laws of New York*, 1935, c. 196.

Another of the recently enacted statutes amends the law in relation to the inferior courts of criminal jurisdiction in the City of New York by providing:

"The court, on motion of the defendant, shall order the making of one or more blood-grouping tests by a duly qualified physician and the results thereof may be received in evidence." *Laws of New York*, 1935, c. 197.

The third act passed by the New York legislature amends the law relating to the support and education of children born out of wedlock and proceedings to establish paternity, by providing:

"The court, on motion of the defendant, shall order the making of one or more blood-grouping tests by a duly licensed physician and the results thereof may be received in evidence." *Laws of New York*, 1935, c. 198.

In view of the progress that has been made in placing blood grouping on a secure scientific foundation, it seems probable the admissibility of evidence based on blood grouping will be universally conceded. The question as to how specimens are to be obtained for examination, however, constitutes a separate problem in the law of evidence. Of course, a person whose blood is desired, or some competent person on his behalf, may consent to the taking of a specimen, and to this there can be no objection. In some cases, specimens will come to light in the course of examinations at the scene of a crime and examinations of the body or clothing of the victim or of the suspected offender. Specimens may be found of blood or of secretions, the examination of which may yield results similar to those obtained from blood, which have been accidentally deposited by the person from whom they come or such specimens may be obtained surreptitiously. But if specimens do not become available in any of these ways, can the court require a party to the proceeding to submit to the taking of specimens for examination? The rule will certainly vary as between civil proceedings and criminal proceedings and in the various federal and state courts. In civil proceedings, if the court orders that a party submit to the taking of a specimen of blood and the party refuses, and if the judgment of the trial court is sustained by the appellate courts of the same jurisdiction, then there is a way of disposing of the controversy by punishment of the recalcitrant party for contempt of court or by the dismissal of the proceedings, as circumstances may indicate. In a criminal case, however, the dismissal of the prosecution would be exactly what the defendant most desired, and the prospect of a dismissal would encourage him in his refusal to submit to the taking of a specimen of blood instead of encouraging him to consent. Moreover, the defendant in a criminal case has a constitutional right to refuse to bear witness against himself, so that it seems unlikely that any court will undertake to punish such a defendant for contempt of court for refusing to give up some of his blood in order to facilitate his conviction and punishment. This right of the defendant is conceded, it will be noted, in the New York statute which authorizes the making of blood grouping tests in criminal cases only on the motion of the defendant, and says nothing as to the right of the prosecution. Whether in this case, in event of the failure of the defendant to make such a motion, the prosecuting attorney or the court could comment on that fact in order that the jury might draw inferences from it is a question that would take us too far afield for discussion here. The constitutional right of a defendant to refrain from bearing witness against himself is not as clear as the language might indicate, for it seems



to be well established that a court may require a defendant to stand up, or to put on a garment or to take off a garment, in order to facilitate his identification by a witness. Some bold judge may some day go so far as to undertake to compel such a defendant to submit to the taking of blood specimens.

Whatever other States may do, however, the rule in Illinois seems to be clearly opposed to any compulsion in the making of any physical examination of any party to the case. This rule runs back to 1882, when the Supreme Court of Illinois, in a personal injury case, *Parker v. Enslow*, 102 Ill. 272, said:

"Complaint is also made that the court refused to compel appellee to submit his eyes to the examination of a physician in the presence of the jury. There was no error in this. The court had no power to make or enforce such an order." *Parker v. Enslow*, supra.

And from that time on—except in cases litigated under the workmen's compensation act, which are provided for under a special statute—it seems to have been the uniform practice of the courts in the State of Illinois to refuse to order any physical examination of any party to a controversy before them.

And paradoxical as it may seem to be, it is not improbable that the rapid advances that have been made and are being made in blood grouping tests will serve to delay the admissibility in court of evidence based on such tests. It may readily be argued that a scientific procedure that is as yet so insecurely established that new blood groups are being added to the list at rather frequent intervals is not on a basis sufficiently firm to enable courts and particularly juries to comprehend the significance of the processes involved, and if an effort is made to explain them on the basis of Mendelian laws, the situation is likely to prove worse than hopeless. As was suggested by the Supreme Court of Wisconsin, supra, with respect to the lie detector, so also with respect to blood grouping tests at the present time. The introduction of evidence based on such tests might lead to a trial of the principles and practice of blood grouping rather than to a trial of the issue before the court.

1. Zeitschr. f. Immunitäts, 6: 284, 1910. . . . .
2. Klin. Woch., 3: 1495, 1924.
3. Hooker and Boyd, Jour. Crim. Law, 25: 187, 1934.
4. Landsteiner. J. A. M. A., 103: 1041, 1934.
5. Northwest Reporter, 252: 7, 1933.
6. Pennsylvania District and Circuit Reports, 17: 229, 1931.
7. New York Supplement, 271: 277 and 272: 165, 1934.
8. New York Supplement, 269: 799, 1934.
9. Allegheny County Court, 1935.

## BRONCHOSCOPY IN LUNG DISEASE WITH SPECIAL REFERENCE TO ATELECTASIS

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The possibilities for improvement in the diagnosis and treatment of lung diseases have barely been touched upon in our section of the United States as compared with selected eastern cities.

Most of us who do bronchoscopy realize this, but we have not done all we could in proving to others that bronchoscopy may frequently be a great aid in the diagnosis of many obscure lung conditions and is a method of treatment of many of these, more efficacious than others already in use.

Lest we forget, a bronchoscopist is not an entity in himself. He is rather one who is dependent upon others,—the family doctor, the internist, pediatrician, and the roentgenologist. One or more of these men have seen the patient first, heard his story, have made physical findings and, in most cases, have treated the patient for days to months. Because symptoms fail to improve or the patient is unable to recover from them under the treatment utilized or because of serious complications arising in the course of the case, the bronchoscopist is called in consultation.

He must then evaluate the various symptoms and facts of the history. Cough may have been present most of the time, or only spasmodic, productive or non-productive, simple or critically severe. Dyspnea may be present occasionally or continuously, simple or threatening the life of the patient. It may be associated with ashy gray pallor about the patient's mouth or with the actual cyanosis of heart failure. There may be hemoptysis, blood tinged sputum or considerable pulmonary hemorrhages. Wheezing, (asthma-toid) heard over the open mouth, may be present all the time or spasmodically. The patient may be losing weight, have afternoon temperatures and have increasing weakness. One or more of these or other symptoms, the bronchoscopist hears about. He has the consultant's well thought out judgment to aid him. The internist or pediatrician has ruled out tuberculosis and pneumonia and now presents his physical findings. These findings may in themselves be non-diagnostic and, therefore, only an aid to the bronchoscopist.

Next we come to the x-ray, perhaps the most important single diagnostic armamentarium in many early and some unusual cases, but it is of some value in most cases of lung disease. Stereoscopic or simple, P-A flat plates are of much value. In early cases of obstructive emphysema and in obstructive atelectasis (so common in so many cases of lung disease at one stage or another) can best be detected by making two

plates, one at the end of expiration the other at the end of inspiration. Obstructive emphysema is intensified in the expiratory phase while obstructive atelectasis, even of comparatively small portions of a lobe, are intensified in the inspiratory phase.

*Obstructive Atelectasis.* Perhaps the most frequent finding which presents itself to the bronchoscopist is atelectasis. It is most easily detected by the x-ray. It may involve a part of any lobe, any one of several, or an entire lung. If it involves both lungs, it is fatal. It may involve several portions, of different or of the same lobe, such as the case in which several small plugs of secretion obstruct various secondary bronchi. Small areas of atelectasis may clear up without treatment while others are becoming plugged, thus changing the picture from day to day. The etiology of atelectasis is protein. Plugs of tenacious, thickened or dried mucopurulent secretion, act as plugs in the bronchi in the same manner as foreign bodies. This is the etiology in postoperative collapse or postoperative massive collapse, the so-called "ether pneumonia." Plugs may shift from bronchus to bronchus the same as foreign bodies may. Granulomas, tracheobronchial tumors, carcinomas, etc., sooner or later cause atelectasis peripheral to the growth when complete plugging of a bronchus takes place. Complete compression of a bronchus from enlargement of parabronchial lymph glands, tumors of the parabronchial or mediastinal tissues, cause atelectasis. Eventually drowned lung and pulmonary abscess result in the involved lung.

The *treatment* of atelectasis varies somewhat according to the cause. Small atelectatic areas may clear up by the use of carbon dioxide and oxygen. If the bronchial secretions are dry, the steam tent may be a most valuable adjunct. When an entire lobe or a lung is involved, treatment by the steam tent, postural drainage (with the foot of the bed elevated and the patient on his uninvolved side), and carbon dioxide used for five minutes at hourly intervals, are at times valuable. Five to thirty percent. carbon dioxide may be used depending on age and case. However, the most definite and certain of all methods is that of *bronchoscopic aspiration or removal* of the obstructing object. Medical treatment is of much value even after bronchoscopic treat-

ment has cleared the major and secondary bronchi. Many times repeated bronchoscopies are necessary for removal of forming plugs. A soft rubber catheter inserted at frequent intervals, through a tracheotomy tube, when this has been necessary, may be directed into either of the major bronchi and secretion aspirated before it has had time to form plugs.

Cases of *atelectasis and lobar pneumonia* may simulate each other. X-ray reveals the difference. In atelectasis the lobe involved has collapsed, not consolidated. The mediastinal structures are pulled toward the atelectatic side but not so in lobar pneumonia. The next two case reports, selected from a large group, represent the simpler and the severest types of obstructive atelectasis treated as "suspected pneumonia."

Case 1. A child 20 months of age was treated two weeks for a *suspected pneumonia*. After severe coughing spells and attacks of intense dyspnea and cyanosis, an x-ray revealed an obstructive atelectasis of the right middle lobe. After removal of a kernel of corn by bronchoscopy, tracheotomy, medical treatment and several more bronchoscopies for removal of dried plugs of secretion, the patient's lung became clear,

*Diagnosis:* Obstructive atelectasis caused by vegetable foreign body.

Case 2. Patient 3 years of age had been treated for suspected pneumonia for two weeks. At the end of the second week the patient had a sudden attack of violent coughing followed by extreme dyspnea and marked cyanosis. Temperature to 103; pulse 160; respiration 56. Twenty-four hours later x-ray revealed atelectasis of right lower lobe and a massive collapse of entire left lung. A working diagnosis was made of a foreign body which had been present two weeks in right lobe bronchus and had been loosened into trachea and reaspirated into left main bronchus, thereby the cause of the massive collapse. At bronchoscopy a kernel of corn was removed from the left main bronchus. The bronchial mucosa was much thickened but air rushed into the lung upon removal of plug. Much thick tenacious secretion was aspirated from right lower lobe bronchus. This was followed by a rapid convalescence of the case.

*Diagnosis:* Obstructive atelectasis simulating pneumonia and massive collapse of one entire lung caused by vegetable foreign body.

*Massive Collapse.* The exact nature of the so-called *postoperative* atelectasis or "ether" pneumonia has been established for some time, but the most certain and scientific method of treating this condition has been recognized only a very few years. It is true that by medical treatment a certain percentage of cases will recover, but it is only by *bronchoscopic aspiration*



that the highest success is reached in their treatment.

The following are selected cases illustrating the case not bronchoscoped, the one bronchoscoped and the one in which diagnosis was overlooked.

Case 3. A male 28 years of age was operated on (herniotomy), nitrous oxide ether anesthesia. He had had a chronic bronchitis for many weeks. Thirty hours after operation he became very restless, was dyspneic and developed temperature 103-104 degrees. A diagnosis of beginning massive collapse, right, was then made. The patient insisted upon lying on his involved side. Upon being turned onto his normal side, he almost "strangled" on nearly a half tea cup of thick, viscid, purulent yellowish sputum which was suddenly coughed out of the bronchial tree. It was decided to wait 24 hours before doing a bronchoscopy. During this time CO<sub>2</sub> and O<sub>2</sub>, postural draining, forcing fluids and elimination of narcotics (which had been freely administered before) were carried out. On the fifth day the lung was clinically cleared.

*Diagnosis:* Early post-operative atelectasis.

Case 4. Age 28 years, had appendectomy under ethylene. Nine hours later dyspnea, temperature and x-ray revealed early postoperative collapse. By the end of the second day the temperature rose to 103 degrees with much cough and expectoration of yellowish mucopus. The respiratory and pulse rate rose to 44 and 120. A bronchoscopy was done because treatment did not change the course. Temperature fell rapidly and the lung cleared by the end of the fourth day postoperative.

*Diagnosis:* Early postoperative atelectasis.

Case 5. Male, aged 30 years, had herniotomy under gas-ether. Eighteen hours after operation temperature was 103.6; pulse 120; respiration 38, after sudden onset of dyspnea, cyanosis and violent coughing. After one hour condition improved a little. X-ray and physical findings indicated a postoperative collapse of the right lower lobe. The next day a bronchoscopy was done because medical treatment did not improve the clinical course. Much thick yellowish bronchial secretion was aspirated from the trachea and larger bronchi and plugs were removed from the right main bronchus. The patient had an almost immediate recovery.

*Diagnosis:* Postoperative lung collapse.

Case 6. Male, 44 years of age, was operated on for ruptured gangrenous appendicitis. This was followed by peritonitis with septic temperature, rapid pulse and respiration. It was thought at the time that the patient had developed a pneumonia during the first 10 days postoperative. The diagnosis, however, made later from early x-ray plates was postoperative collapse. Sometime within four months after operation, a lung abscess developed in the atelectatic right lower lobe, followed by adhesions to the diaphragm and parietal pleura. Two bronchoscopies were done. Bronchi were dilated and pus aspirated. The patient did not improve and five

months postoperative a rib resection with drainage was resorted to. The patient was in good condition three months after the rib resection but not entirely recovered.

*Diagnosis:* Unrecognized postoperative collapse followed by lung abscess.

#### CARCINOMA

Chevalier Jackson says "it is now generally accepted that the bronchoscope affords the only means of making an early and positive diagnosis of malignant disease of the bronchi and lungs." Any person with a protracted cough or expectoration, not proven to be tuberculosis, should be permitted a diagnostic bronchoscopy. There are no symptoms characteristic of early or late bronchial malignancy. Early cough with some expectoration, asthmatic wheeze, occasionally hemoptosis, and later, the symptoms of pulmonary sepsis, are not diagnostic but rather suggestive. The x-ray diagnosis is important but the bronchoscopic biopsy is the only positive and final factor in the diagnosis of bronchial malignancy.

In 117 cases reported by Andrus in the Chest Tumor Registry, (J. Thoracic Surg. Feb. 1935) there were 64 cases where the diagnosis of primary carcinoma of the lung was considered as established. Only 15.5% were under 40 years of age. In 84% of cases, poorly localized pain or pain of pleural type, cough and dyspnea (in both massive effusion and bronchial compression) were the chief presenting symptoms. There was bloody sputum in 12% of cases. The loss of weight in these patients was very considerable.

Physical findings of the chest showed little of diagnostic value except in late cases and these were already hopeless. In 87% of cases the x-ray gave definite evidence of pathologic condition. Some operative procedure was done in 30% of the cases resulting in one case living at the end of the second year and a case in which lobectomy was done was well three years later.

This review emphasizes the need for earlier diagnosis. This can be accomplished only by the freer use of the bronchoscope, especially in cases with early atelectasis.

All cases of carcinoma of the bronchi and lungs are sooner or later complicated by atelectasis with the subsequent pulmonary suppura-



tive disease,—abscess, pleural effusion, empyema, gangrene of lung.

The following are two selected cases of late unrecognized carcinoma of the bronchi and lung.

**Case 7.** A woman 67 years of age, apparently in good health, had a sudden pulmonary hemorrhage while visiting in a distant city. This was arrested under general treatment. About six months later she sought her family doctor because she did not seem to be recovering from "protracted cold." At this time he heard bronchial breath sounds and "sibilant" rales over the entire right chest. An asthmatoïd wheeze was present. X-ray showed a massive collapse of the entire right chest. At bronchoscopy a fungating carcinoma, bleeding easily on contact, filling the entire right main bronchus up to the carina. A section under microscopic examination showed adenocarcinoma of bronchial origin. An autopsy three weeks later showed an extensive invasion of the peribronchial and lung tissue.

**Diagnosis:** 1. Adenocarcinoma of bronchial origin. 2. Massive collapse right entire lung.

**Case 8.** A male 52 years of age, first noted, May, 1932, that he became exhausted easily, at times had some difficulty in getting his breath and had developed a left side wheeze. Some days he was free from the wheeze and at others he thought he heard a "whistle" in his lung. Six months later he suddenly became chilly, very weak and dyspneic and was sent to bed. A diagnosis of left sided pneumonia was suggested. He was in bed for six weeks before admission to the hospital. He was expectorating large amounts of foul pus. X-ray revealed a massive collapse of the entire left lung. At bronchoscopy a spherical mass, grayish in color and rather smooth, was seen attached by a pedicle to the left main bronchus about  $1\frac{1}{2}$  cm from the carina. Microscopic section was that of (adeno) carcinoma of the bronchus. The patient expired three weeks later.

**Diagnosis:** 1. Massive collapse left lung. 2. Abscess left lower lobe. 3. Carcinoma of left main bronchus.

**Case 9.** Male, aged 47 years, had some cough and expectoration followed by pain in the left scapular region. Within five weeks he developed fever and night sweats, lost much weight and sputum became bloody. During the sixth week he had a sudden attack of extreme cyanosis and dyspnea lasting nearly two hours. He complained of some substernal ache. He continued to lose weight and strength. At bronchoscopy, ten weeks after the apparent onset, a considerable lateral compression of the lower trachea, and a complete compression of the left main bronchus, total about 2 cm from carina, were seen. No tumor was visible but after bronchoscopic aspiration the right upper lobe appeared clearer under fluoroscopy. Two days later the patient expired from a severe pulmonary hemorrhage. Autopsy revealed atelectatic and gangrenous areas throughout the left lung. No malignancy was evident on gross examination, but was strongly suspected.

**Diagnosis:** Massive collapse from external compression of main bronchus caused by parabronchial growth.

In conclusion it is the purpose of this paper to reemphasize that bronchoscopic examination is indicated—

1. In all cases with protracted cough or expectoration in which tuberculosis has been ruled out.

2. In all cases of obstructive atelectasis. Medical treatment is of some value in many of these cases but is not diagnostic.

3. In all cases of asthmatoïd wheeze or simple "wheeze."

4. In all cases of blood tinged sputum or hemoptosis not proven tuberculous.

5. In all cases of dyspnea and cyanosis not proven to be due to heart disease.

If bronchoscopic examination is carried out early, we shall be better able to determine the cause and to treat atelectasis. We shall, thereby, prevent many cases of lung suppuration. Early bronchoscopic diagnosis and removal of the growth is our only hope in malignancy of the bronchi.

Jefferson Building.

## DISCUSSION

Dr. Charles D. Sneller, Peoria (closing): I am very sorry to have chopped off my paper in this way, due to lack of time. I would like to say that the field of bronchoscopy is hardly touched outside of Chicago or any of the larger cities, and most of the cases have to do with foreign bodies. I think if we should all help out in this missionary work, 95 per cent. of our cases would be done for treatment and diagnosis of lung conditions, rather than be confined to foreign bodies.

## THE TECHNIC OF ORCHIDOPEXY

J. S. EISENSTAEDT, S.B., M.D., F.A.C.S.

CHICAGO

Seven years ago I had the opportunity of reporting the end results in a series of patients operated upon for non-descent of the testis. At that time the operative technic was detailed and the complete conservation of the spermatic vessels was emphasized. Our results then were reported as generally satisfactory. The testis was in the scrotum in all cases, in 60% in the lower third and in 40% in the middle third. In no case was the testis situated above the middle third of the scrotum. There was no case of atrophy in the series. A marked increase in the size of the testis was reported in all cases. There was no

From Department of Urology, Michael Reese Hospital Chicago.

case of recurrent hernia, though in all cases a hernial sac was present. In 85% the sac was excised. Since then a much larger series has been operated upon with increasingly good results. Seventy-eight cases were available for follow-up. The testis was in the lower third of the scrotum in 63%; in the middle third in 37%; in no case was the testicle above the middle third of the scrotum. A marked increase in the size of the testis was noted in all cases but one. There was but one case of atrophy, and this occurred in a negro of 37 years, who had both testes within the internal rings. There was no case of recurrent hernia.

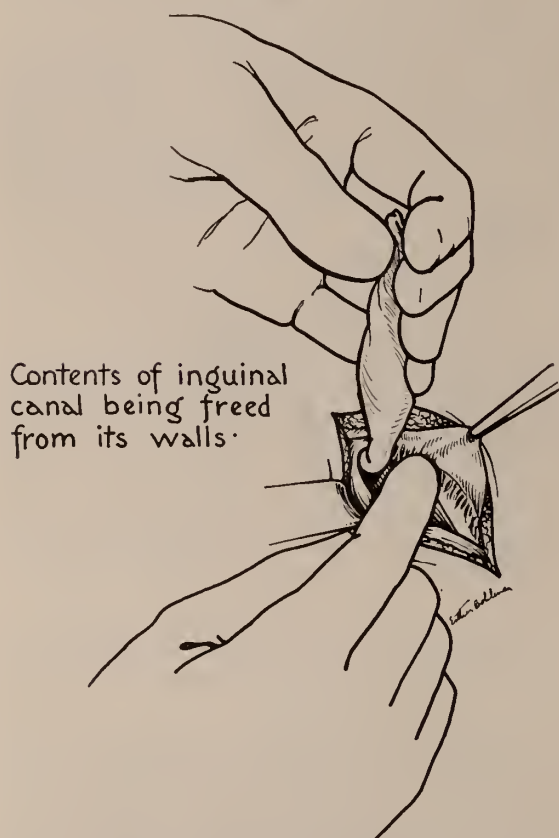


Fig. 1 shows the anatomical relationships after the skin and external oblique have been cut.

The operation done at that time was a modification of the Bevan operation, and as Wangenstein says, "The modern operation as it is known today is indelibly linked with the name of Bevan and is largely the result of his efforts. He has stressed particularly the fact that the separation of the vaginal process from the other elements of the spermatic cord combined with the removal of the coverings of the cord, will so mobilize the

testis, that in most cases it may with ease be placed into the scrotum."

In my last paper on this subject the importance of the above-mentioned procedure was called attention to and minutely followed. I also stated that after one has made sure that these fibrous bands have been satisfactorily disposed of, the little finger is passed within the internal ring and gently frees the cord from any "adhesions" holding it. Other strands may also be brought into view where they may be cut. This maneuver I consider important and it should always be done if the previous cutting and teasing apart of the strands within the length of the canal will not permit the complete descent of the testis." Other details of the completed operation will be discussed below.

During the past several years, many excellent contributions on this subject have appeared and several series of splendid operative results have been reported.

It is not my intention at this time, to take issue with those authors advocating fixation of the testis or the gubernaculum to the thigh but rather to indicate certain points of similarity, in recent contributions, relating to the essential points of operative detail.

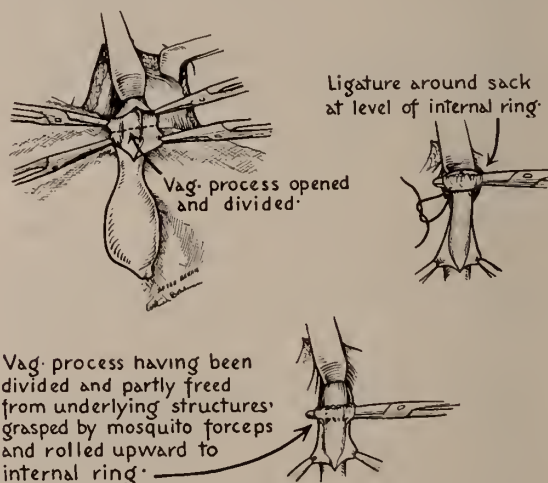


Fig. 2 presents the various procedures for separation of the processus vaginalis from the underlying structures of the cord.

Burdick and Coley say, "in the simple cases the separation of the 'adhesions' about the internal ring will give sufficient length to the cord, to place the testis well toward the bottom of the scrotum without tension. In the others the

various fascial bands about the cord will have to be cut."

Wangensteen states, following Bevan, that the initial step in lengthening the spermatic vessels is the separation of the hernial sac. The fascial coverings are then teased and cut. It has also been his experience that freeing the spermatic cord well into the retroperitoneal space using the fore finger as a dissector, is a most valuable maneuver in gaining additional length. The legend under Figure 8 illustrating his excellent paper reads: "If the testis still cannot be brought into the scrotum because of the inadequate length of the vessels, the internal oblique and transversalis muscles are cut across. Splendid exposure of the retroperitoneal spermatic vessels is obtained by pulling the peritoneum medially at the upper end of the wound with a large retractor." The above is absolutely true in my experience, however this technic has the disadvantage of weakening the abdominal wall by cutting through the muscular part of the internal oblique, and may predispose to incisional hernia.

Cabot similarly emphasizes the advisability of freeing the cord from strands within the internal ring and likewise inserts his finger into the retroperitoneal spaces using it as a dissector. He does not cut any of the tissue at the internal ring.



Fig. 3 shows a method of severing the fascial fibers applicable in many instances.

My concept of the operative correction of cryptorchidism had undergone but very little alteration during this interval, and until August of last year very little change had been made in

technic. Fixation of the testis or gubernaculum to the thigh has never been done and severing of any part of the blood supply of the testis likewise has never been necessary.

An excellent article by Dr. Browne<sup>1</sup> afforded me a new point of view.

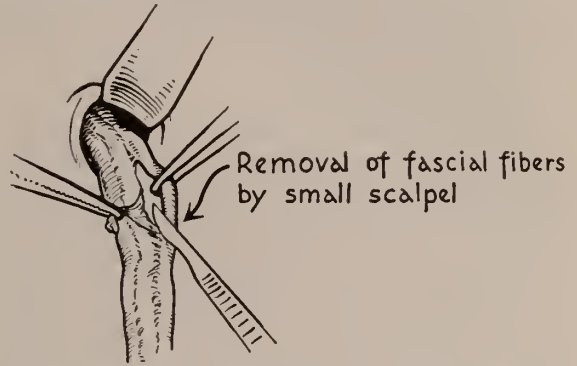


Fig. 4 shows an alternate method of removal of fascial fibers.

His contribution, based on interesting anatomic research, gives an explanation for what I believe one should attempt to accomplish in the operation for undescended testis. He sought for the structure which supports the testis when the cremaster and dartos muscles are relaxed, and says the following:

"To find out whether there actually exists the structure which has been deduced from the combination of the body and the mechanics of the problem, two incisions are necessary, the first is the ordinary midline one that opens the peritoneal cavity and lays bare its posterior wall. Then when the action of gravity is imitated and exaggerated it is seen that the strain of this drag passes up along the cord past the internal ring to radiate over the exposed posterior wall. The main stress comes on fibers which can be seen and felt beneath the peritoneum, running upwards and outwards from the convexity of the curve described by the spermatic vessels in the iliac fossa, but the pull is felt far above this and even the kidney moves with it. The peritoneum, of course, moves with the shifting of the structures beneath it, but is far too flimsy and extensible to withstand the strain; the structure which is sought must lie beneath it. To show this structure a second incision is made. This incision divides the entire muscular abdominal wall from the lumbocostal angle to the scrotum, opening that line of cleavage which lies directly beneath the muscles and which the surgeon uses in the extraperitoneal approach to the ureter or iliac vessels. There is isolated a layer of fibrous tissue which is apparently continuous around the whole body. Above it becomes thick and fatty to ensheath the kidney, below this the ureter and spermatic vessels run in its substance, at the internal ring a prolongation of its fibers accompanies the spermatic vessels through the inguinal canal down to the testis. It is this prolongation



whose jaw-shaped upper end was demonstrated through the intact peritoneum by pulling upon the cord and which normally takes the weight of the testis off the vessels and the vas when the suspensory muscles relax."

I have dissected several cadavers of fetuses and still-born children and have proved to my entire satisfaction the truth of Browne's description of his observations.

Browne further states:

"In the operation for undescended testis the suspensory fibers must be deliberately and delicately isolated where they spread out in a fan shape from the spermatic vessels at the internal ring. This fan can be felt running upwards free between the peritoneum on the inner side and the muscles on the outer. The veins are carefully defined on its inner edge and it is divided piece-meal. The final step in lowering the testis is a similar cautious division of the band which maintains the angle of the vas and the spermatic vessels at the internal ring; when this is done the deep epigastric vessels are no obstacle to the complete shifting inwards of the cord and consequently there is no need to divide them as Davison recommends."

This latter suggestion I have also applied in the last three or four operations and concur also in the usefulness of this procedure. In cer-

Freeing of adhesions to cord structures within the internal ring by handle of knife

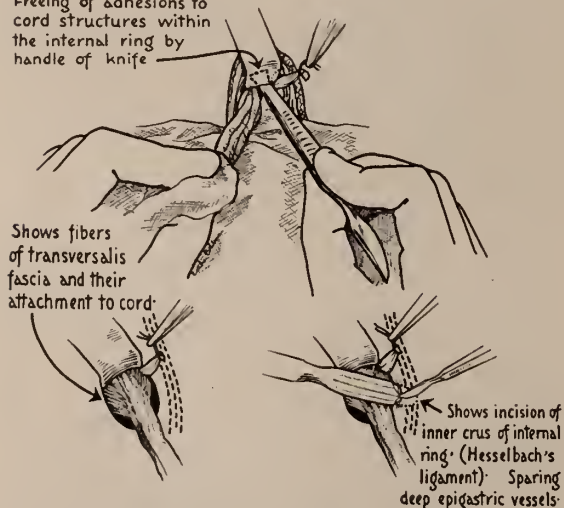


Fig. 5 shows the necessity and method of freeing structures within the internal ring as well as the occasional requirement of severing the internal crus. Note sparing of the deep epigastric vessels by cutting upon a Kocher director placed above them.

tain cases obviously complete adherence to this technic is not necessary but for the more difficult ones it is highly satisfactory and a welcome addition to our previous technical details.

The term adhesions which other contributors and myself have so frequently used to describe

the fibrous strands of the abdominal connective tissue, which are attached in a fan-like way to the cord is obviously a misnomer as these strands are from a normal connective tissue layer and are not of pathologic origin.

The band at the internal ring to which Browne refers is Hesselbach's ligament and conforms perfectly with Hesselbach's original illustration of this region.

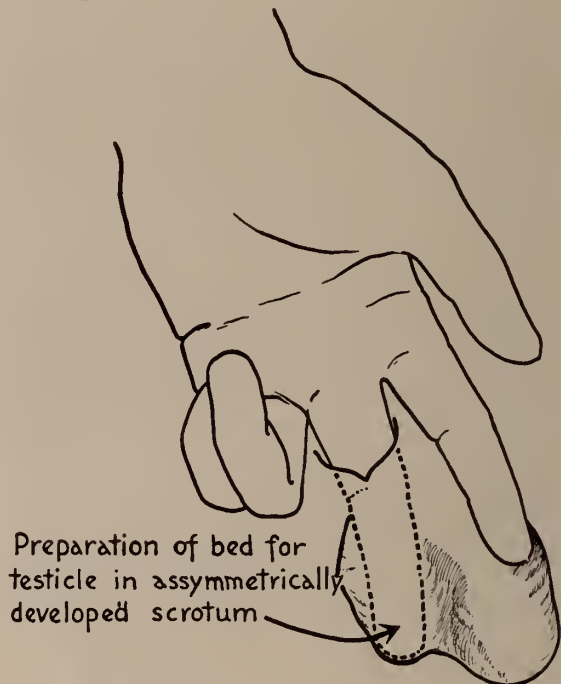


Fig. 6 is self-explanatory and shows the preparation of the new bed with the testis in the scrotum.

To summarize, our operative technic consists of the following essential points:

1. Freeing the hernial sac from the other elements of the cord and its proper disposal.
2. Freeing the vessels and the vas deferens from all fascial coverings, which include strands from the intercolumnar, infundibuliform fascia and cremasteric muscle.
3. Separation, when necessary, of the cord from all suspensory strands of the abdominal connective tissue layer, both at the internal ring and within it in the retroperitoneal space.
4. Division of Hesselbach's ligament at the inner crus of the internal ring in cases in which adequate length of the spermatic vessel is not obtainable without this procedure.
5. Preparation of an adequate bed in the poorly developed asymmetrical scrotum.
6. Closure according to Andrews with attention to the proper placing of the purse-string

suture overlying the cord; closing off the upper part of the scrotum.

In certain cases we have observed the testis retained below the external ring and have in these instances been able to determine the presence of fascial pockets as described by McGregor.

Certain authors have observed that some months after operation, a testis which at the time of the completion of the operation, lay in the lower third of the scrotum, may be found at a higher level, even reaching the upper third of the scrotum. For this reason they feel that a two step operation is required; the first step consisting in freeing the cord structures and eventually suturing the testis or gubernaculum to the fascia on the inner surface of the thigh. It has been my observation that occasionally a testis will ascend from its low lying position in the scrotum during the first few months after operation but, as a rule, in a year or two, coincidently with the growth of the organ, it has been found at its original postoperative level low in the scrotum.

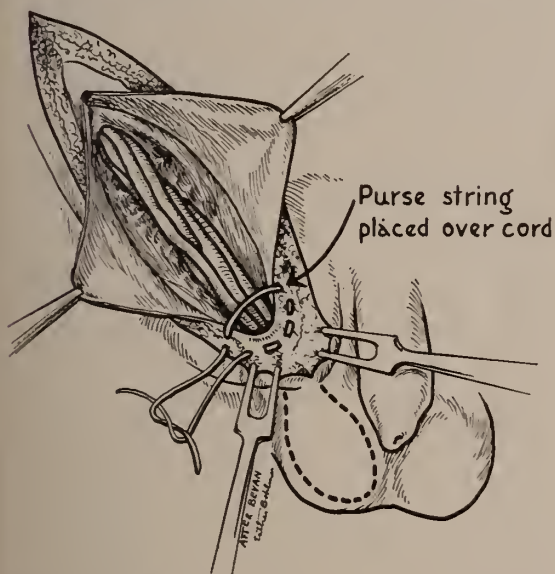


Fig. 7 shows the method of closure after Bevan and the anatomical relationships at this stage of the operation.

It may be of interest to note that as high as 10% of atrophy of the testis has been reported following the Torök technic. Tyrell, who uses a fixation technic, says in cases of poor results insufficient mobilization was the cause. His series showed 66% of excellent results, 10% good, 16% poor and 10% of atrophy.

It is my firm conviction that complete mobilization is the essential part of the operation and that perfect mobilization will assure a satisfac-

tory operative result. Obviously perfect mobilization and fixation will also render excellent results. But incomplete mobilization and fixation of whatsoever type used will not afford uniformly satisfactory results.

Recently the much heralded use of anterior pituitary-like substances for nondescent of the testes has impressed many members of the profession, especially the pediatricians. I have made use of such substances in a group of cases which definitely showed evidence of endocrine disorder, such as adiposis genitalis. There is no doubt in my mind that such material should be tried in cases of endocrine dysfunction. In a certain group of patients the testes will descend late without any therapeutic help. In some of these patients the testes, though down in the scrotum, do not develop in size proportionately with the rest of the body. In these cases at, or shortly before anticipated puberty, anterior pituitary-like substances, I believe, are also indicated. I feel, however, that the use of endocrine products for the purpose of causing testes to descend should not be used indiscriminately in young patients of normal habitus, who show no deviation from the normal except the failure of one or both testes to descend into the scrotum. Their use in young adults of normal habitus past the age of sixteen or seventeen years, may possibly be attended with unsatisfactory results, because the rapid increase in size of an organ which is prevented mechanically from descending may lead to pathologic changes, as I have observed.

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#### THE GENERAL PRACTITIONER

TOM KIRKWOOD, M. D.

LAWRENCEVILLE, ILL.

This is not an eulogy on the family doctor. It is an attempt to analyze his present position in the social order, and in the medical profession. Is he necessary? What are his responsibilities to the public and to the profession? What is going to happen to him during the present social

President's address before Aesculapian Society of the Wabash Valley, 89th Annual Meeting, Paris, Illinois, October 31, 1935.



revolution, and what is he going to do about it—if anything?

Is he necessary? It seems to me that he is. I cannot conceive of any arrangement whereby it will be possible or desirable to eradicate him. He may under some new scheme be called a panel physician, et cetera, but he will still be a general practitioner just the same. After making out his reports and affidavits and what not, he may have little time left to practice the healing art, but he will be doing as well as possible under the handicap. He still exists—and exists is the name for it—under the various European systems where medical practice is in the hands of the State or is carried on by various health insurance agencies. However, under any plan which has so far been devised, the public seems to get the best service where the doctor is interfered with the least. It is apparently as impossible to legislate ability or efficiency into a man or a group of men, as it is to legislate a taste for liquor or narcotics out of the human family.

The marvellous developments in surgery, the specialties and in internal medicine during the last thirty or forty years have forced the general practitioner into the background. In 1888 bacteriology was not taught in any medical school in America, and the first x-ray was not made in the City of Chicago until 1898. The spotlight has been on these, and other newer phases of medicine, and the family doctor has been more or less forgotten. We hear that he, like the dodo, is a thing of the past; that he is a relic of the horse and buggy days, like our Constitution. They say that he is a man who knows less and less about more and more. Some have been sorry because he is supposed to be on the way out, but others have frankly stated that the sooner he disappears, the better it will be for all concerned. All have admitted that he is a unique specimen even if more or less useless. Be that as it may, his ranks have increased considerably since 1929 and meanwhile, in spite of all the wisecracks, he has continued to do by far the greater part of the medical work done in this country. Our morbidity and mortality rates in this country show that he has done this work very well. He will have to continue to do this work for many years to come. Medical men cannot be trained in a few months, so there is no one who can take his place. The social order may change his name but the same work will

remain to be done, and the same men must do it. In this country the pauper is now called a client, so who knows how dignified and imposing our new title may be, if state medicine does come.

The family doctor is usually the first to see the emergencies in medicine and in surgery. His is the responsibility of recognizing such conditions as diabetic coma, uremic convulsions, coronary accidents, eclampsia, and various cerebral accidents. He is the first on hand at the numerous dangerous accidents of today. He must also recognize such emergencies as intestinal obstruction, appendicitis, perforating peptic ulcers, ectopic pregnancy, placenta previa, strangulated hernia, and many others. What surgeon or other specialist, regardless of his ability, can do much for many of these conditions unless a prompt diagnosis has been made by the family doctor?

The contagious diseases are nearly all treated by the general practitioner and he will continue to treat or supervise the treatment of such diseases as diabetes, arthritis, and neuritis. He is the first who has a chance to see cancer and other malignancies, and upon his ability to recognize these at an early stage, depends the life of the patient. Upon his skill and ability rests the fate of the syphilitic. He is the first to contact such greater killers of humanity as pulmonary tuberculosis, cardiovascular and renal diseases. The safety of the patient in a great many of these conditions depends to a great extent upon the diagnostic skill of the family doctor who sees them first, and upon the adaptability of the system under which he renders his service. Under our present system the average emergency will be seen quickly and arrangements for treatment will be expedited. Under any state system of control, because of the associated red tape, things will be much slower. I have seen one patient with a service connected pulmonary tuberculosis, progress to an incurable stage while attempting to get into a government hospital. Another who, in my opinion, was entitled to treatment, was neglected to a point where in a rage, he committed a murder because he thought a man was causing him to lose a small job which brought in a few dollars a week upon which his family had to subsist. We have all seen the mental disaster caused by examiners who at one time tell an ex-soldier that he is 80% disabled, and a few months later tell him that he is perfectly able to



work, and then a year later reverse themselves and declare him again totally disabled.

Every general practitioner should strive to be a good diagnostician. When reasonably proficient in this art, he is in a position to know what he is treating, how long it is advisable for him to treat a disease before calling consultants, and when the patient should be turned over to a specialist, because it is no longer within his ability to properly handle the case. In these days many of us in general practice have the idea that it is impossible to make a diagnosis without using elaborate equipment and without depending to a great extent upon laboratory aid. McKenzie once said that whenever he saw a doctor loaded down with equipment on his way to examine a patient with heart disease, that he always wondered what he had done with what God gave him. Charles Mayo remarks that what a doctor has under his hat is far more important than what he has in his laboratory. These men are not belittling our modern methods in diagnosis. They are only trying to make us remember that after all we must depend upon ourselves, and remember that our laboratories are only furnishing part of the evidence. Our tests as a rule only help to confirm what we have clinically suspected. At times the evidence furnished by these tests is of great importance. It may also be very misleading. We must learn to give the evidence thus gained its proper place and must not minimize it on the one hand or place too much faith in it on the other. It is possible for the man in general practice to make the proper working diagnosis in the vast majority of cases which he sees. Most can be made without the use of elaborate equipment or complicated tests, but if such equipment or tests are needed, it is his business to know where to send the patient in order to get the needed service. At any rate he should remain in charge of, or in touch with his patient. The sooner he is willing to assume the responsibility for the welfare of the patient the sooner he will become indispensable in his community.

In many places it is impossible for the clinic or group idea to operate efficiently. In such localities, the local practitioner must assume the duties of the internist in the clinic, making use of his own observations and correlating the findings of various specialists to whom he may have to send his patient. He can thus give his patient most or all of the benefits of the clinic

idea—and often at less expense. His ability to render this service will aid in forestalling state medicine. The specialist, if he is wise, will help the family doctor to render this service to his patients.

Experience is a great aid in avoiding diagnostic pitfalls but one able clinician has aptly remarked that some men often make the same mistake fifty times and call it "experience."

In most communities the family doctor is still the one upon whom the people depend for the prevention of disease and for advice during epidemics. The attitude of the general public towards preventive medicine and quarantine regulations depends to a large extent upon the caliber of the local practitioners. The attitude of the people towards prenatal care, maternal and infant welfare and the care of the growing generation depends on the ability and efficiency of the local medical man. People are reading nowadays and get a great deal of information and misinformation concerning medical matters from the lay press. If they see, or think, that their local doctors are not up to standard they are much more easily influenced by the advocates of state medicine.

Some of the doctor's responsibilities to the public have been enumerated above. There are others. He has always tried to protect the public from medical quacks. He must now endeavor to protect it from political quackery. He knows how gullible the public has always been so far as the medical quack has been concerned, and during the last few years has had ample opportunity to realize that the political quack can be just as dangerous as the medical one. We must also realize that many in our own ranks may fall for political promises.

What is going to happen to the general practitioner? This depends to a large extent upon what happens to the country from an economic standpoint within the next few years. If we have prosperity and everything is rosy, we *may* have little to fear in the immediate future. However, the time is coming for a showdown and, in my opinion, it won't be long now. The President has said that nothing will be done in the way of federal interference unless there is a crystallization of public sentiment in favor of it. At the same time those who are interested are right now furnishing to universities and high schools the material for debates on the subject of state

medicine or compulsory health insurance. It is quite evident that while nothing may be done in this direction unless the crystallization of public sentiment demands it, the powers in control are in a position to hasten this crystallization if political expediency demands it. So, if things do not improve, we may find that we are the next ingredient of the alphabet soup. The general public, so far, knows little and cares less about state medicine, and if it is harnessed upon us, it will be done by the politicians and big foundations. The politician will do it for votes and as a method of perpetuating his place at the public trough. If the invasion of the field of medicine will help to attain his ambitions, he will not worry about its effect on the medical profession or upon the public. The promise of free medical care should draw an enormous vote from certain elements of the proletariat and it is logical to expect most any kind of a promise from some of our present crop of politicians. Furthermore, the institution of some type of state medicine will open up a fertile field for appointments, and the opportunity to have new jobs for relatives, friends and followers is dear to the heart of most of our statesmen. The present setup is ideal for fastening compulsory health insurance upon our country. Numbers of newspaper men who are out of work are upon the federal payroll and can be used for any kind of propaganda. A good many medical men are in the same position. It is not likely that these men will bite the hand which feeds them. State medicine made its appearance in Germany in 1883 and in England in 1911. In both cases it was not due to public demand but came as a political expedient. It has not helped the public or the profession in any instance, but on the other hand has done great damage. After a thing has failed in Europe, it seems to be the general impression among our politicians that we should try to make a more impressive failure along the same line in this country.

The attitude of some of the foundations has always seemed a bit complicated to me. Here we have vast sums of money piled up by individuals who have certainly made enormous profits, often at the expense of the very part of the public for which they now feel so sorry. The profits have been large, for otherwise such sums of money could not have been accumulated. The fact that these sums are now available signifies

that these philanthropists charged the dear public a tidy sum for services rendered. A handsome profit would have been possible even if the public had paid considerably less for what it bought. Would these philanthropists admit that the state could render the same services which they rendered to the public in a more efficient manner, or at a smaller cost? I hardly believe that they would, and if they did admit it, I would not believe it possible. These same philanthropists however constantly criticize *our* charges and *our* service and are working steadily to change the system under which we are now operating. In its place they too are seeking to substitute a system operated by the state or through some insurance substitute, and expect by doing so to eventually render the same type of service to one and all. The poor are to get the same attention as the upper classes. Did the poor, for example, get the same service as the rich from organizations controlled by Rosenwald or Filene? Only if it was paid for. The profits from foundation investments must be used to the best advantage to show results. If interference in the field of medicine makes the best appeal to the audience the founders or managers of some foundations will move in this direction. Perhaps some of our philanthropists feel a pang of remorse after having exploited certain classes in this country and seek to make restitution by paying them back at our expense. Perhaps this exploitation has something to do with our present predicament.

In Germany in the early stages of the game the doctors, as well as the public, were promised great things, such as shorter hours, steady income, old age pensions, less competition, etc. The same promises will be made to members of our profession in this country. To those who look only at the present these promises will carry great weight, and to these men it will be a difficult proposition to turn a cold ear to such promises. Those who are hard up for money, those who are inefficient, and those who are just starting into practice will be particularly interested in government work which will guarantee a steady income. After the change was made in Germany the doctor soon became one of the first forgotten men. His hours became longer and more patients were forced upon him during his working day. His pay was gradually reduced. The quality of services was stressed less and less



by the administrative officers, and the institutions, equipment, and management were played up more and more. The officials who controlled the vast machine occupied the limelight and gradually usurped the rights of the professional man. The doctor became a mere cog in the machine and he either had to mesh just right or get out. All of us who have followed the fortunes of our German colleagues know what happened to them. We also know that Germany is no longer the leader in the medical world, since the change was made and the inevitable gradually happened. We know too that the morbidity rate has increased by leaps and bounds in Germany under state medical control, and that the German doctor in general practice has had little incentive to improve himself.

In this country the same thing will happen on a larger scale. When one thinks about what will occur when we are at the mercy of a group of lay officials which will be changed with every change of political party, or which may become too firmly intrenched if one party remains long in power, it makes one realize that it is high time for us to do everything in our power to avert such a possibility.

The idea that the state will furnish any one better medical attention than that now available is fantastic. Today while mailing a specimen of blood to the state laboratory, I noticed on the card this request, "For reasons of economy, please do not ask for unnecessary tests." The expense connected with running a state laboratory is a drop in the bucket compared to what state medicine will necessitate. Under state medicine the citizens will at once demand all kinds of unnecessary services, and we will be swamped with minor ailments to the point where we will be unable to attend properly to more serious and important diseases. The expense of such services will be enormous. It is entirely possible that after a while this expense *will* force the state to limit its services to that which is absolutely necessary, and that some visiting nurse, case investigator or some ward politician will decide whether or not the service is absolutely needed. There is no reason why any one should expect any improvement in services under a politically controlled system of medical practice, for when politics enters, ambition and merit too often depart. The federal and state governments have examined, inspected and okeyed the banks of this country

for years, but this did not guarantee first class service or protection to the people who used them. The Federal Reserve system was supposed to be able to prevent wild periods of speculation such as we had in 1929, but when the time came to put on the brakes, it was not politically expedient to do so. The legal proceedings in our courts have always been under government control. For years there has been an insistent demand for more speed and efficiency in our legal machinery in order that justice could at least be dispensed more rapidly and at less cost, but there has been little improvement in this field. Our army has never been prepared for war and, if critics are at all right, our air forces and navy are still in great need of improvement. In the face of all this, it is difficult to understand why anyone, without an axe to grind, should be so interested in turning medicine over to Government control.

If the doctor is like most officials, the rank and file of us will do what we have to do under any state scheme of medical care—and no more. In fact after we get all of our reports made out and our affidavits filed, we will probably be too tired to worry much about the quality of our services. During the World War I, for one, became fairly proficient at the art of loafing and several of my officers also became very skilled along this line. There was plenty of red tape to everything, but we soon found that it didn't pay to try to change things, because everything was just right as it was, and any suggestions made with the idea of improving conditions were more or less frowned upon. Once our field hospitals in the Bridge-head area across from Coblenz were running about 25% capacity while the evacuation hospitals in Coblenz were overflowing. We were only allowed to hold any patient for four days regardless of how mild his illness or injury might be. A Colonel from headquarters came over to inspect the hospital which we were running in Ehrenbreitstein and told us that headquarters had decided to take it over to take care of some of the overflow. One of my junior officers remarked that if our field hospitals could be allowed to hold some of the milder cases for a few days longer that we could immediately check the congestion in Coblenz. This was a perfectly feasible solution which had been discussed by the staffs of the several field hospitals. We had very good hospitals and a reasonably competent group



of officers and could have held most of the cases for any needed length of time. The reaction of this Colonel was very enlightening. He told the junior officer that he really should come over to headquarters and tell the army surgeon how to run his business. Suggestion to government officials are as a rule unwise and may even be dangerous if the official happens to be one of the type who takes himself or his position too seriously. There will be a lot of this for us to put up with if we are ever under state control.

A good example of the great interest which public officials take in the public was recently reported in one of the Chicago papers (the *Tribune*). Complaints against the municipal court there include: excessive costs in a court which was intended to be a poor man's court; involved rules, with all of which even the judges are not thoroughly conversant; the emasculation of the police courts, by the formation of special courts for practically every law violation; the hours litigants are forced to wait for tardy judges; the unkempt condition of the court rooms; and the lack of courtesy displayed by many of the attendants. The chief justice of the Chicago Municipal Courts says, "What can I do about it?" to critics of the courts. The judges are supposed to work five and one-half days a week. Each month each judge is supposed to report the number of hours worked per day and the number of days worked per week. However, some of them do not make these reports. The judges usually disappear altogether on Saturday mornings and during the racing, football, baseball, fishing and shooting seasons, they are also usually gone on Friday afternoons. The chief justice says he might stop a judge's pay, for neglect of duty, but that the judge can get it back by a mandamus action. The law provides that inefficient judges may be impeached, but that requires a two-thirds vote by the Legislature, and, says the chief justice, "That's a lot of trouble to take for such things, life is too short, you know, to act like that." An associate judge says that judges who wish to do their duty, and who see that things are wrong, are afraid to say anything, as any investigation brings all judges into contempt of the public, the lazy ones and efficient ones at the same time. The chief justice says, "Some of the judges may be lazy and some may take more vacation than they are entitled to, but what can I do about it?"

Would not many of the complaints made about these courts and judges be applicable to situations which would appear under state medicine?

Under any scheme of the perfect state the government should also look forward to the time when every citizen shall have all he wants to eat and when his diet is carefully computed and balanced in Washington. We all know how important proper food is in the prevention of disease so why shouldn't our Government take over our facilities for handling and distributing this necessity? Proper clothing and housing are also of great importance and should be considered. And what about legal services? Everyone should be able to have a law suit if he wants one. It is expensive and difficult for some of our population to finance such legal proceedings, so provision should be made for free legal services for all. Fuel is needed universally, also, and should be provided. Almost all of us like to go places, or so it seems on Saturday nights and Sunday afternoons, so free transportation by means of an automobile in every garage, and free railroad tickets are in order. Plato considered most of our present problems many years before the Christian era. Like ourselves, he was unable to solve them.

What can we do about it? We can do something about it in several ways. In the first place we must keep the confidence of our patients, and in order to do this our services must be improved to the fullest extent. During this century medical services have been wonderfully improved. No other profession has advanced as rapidly. But we can do better. Each of us can individually improve his work. We can collectively improve our work. Our smaller county societies find it difficult to carry on because of small membership. Some of these counties should be combined so that a large enough group of medical men can be provided for an active society. Better programs can then be provided. These programs should be planned for several months or a year in advance, and should cover important advances in medicine and surgery. The fundamentals of medical science with which we should all be familiar should be reviewed. In many instances a society should attempt to provide a postgraduate course of instruction.

In the second place we must individually and collectively exert as much pressure as possible upon our politicians. We already have an or-

ganization which can be used very effectively to this end if our members will work. And we are now facing a situation where we will work if we have any idea of self-preservation. We have a man in every community who has some influence if he will use it. The foundations are putting out propaganda. The Government is doing it. So why should we hesitate? Our morbidity and death rates are lower in this country than in those where various schemes are now in operation, so why is it good for either the public or the profession to make any radical change? We have cleansed our own house since 1900 and improved our medical schools until they are the best in the world. No other profession has done this. To my way of thinking we are perfectly capable of solving this problem ourselves and we should insist on doing it.

Meanwhile we must take care of the unfortunates who are worthy of charity, but there is no reason for us to assume that it is our duty to take care of that element of the population which is tired of making an effort and has decided to let the Government look after it.

#### SUMMARY

1. The general practitioner will continue to do most of the medical practice in this country regardless of what changes take place.

2. He can be improved but not replaced.

3. This improvement must depend upon his own initiative and upon his own organizations.

4. His ability cannot be increased by legislation. His efficiency will be hampered by state interference.

5. The medical profession is a great temptation to social planners, professional altruists, social theorists, social exploiters and practical politicians. These men are now well prepared for an onslaught in order to gain control of our work.

6. State Medicine or Compulsory Health Insurance will be a political football and hence will accentuate present difficulties instead of curing them.

7. The present "Social Security Act" is an opening wedge. It calls for service to the blind, the aged, the unemployed, maternal and child health, crippled children, child welfare, vocational rehabilitation, and public health work. The expense connected with all of this will be

something for even the present crop of magicians to think about.

8. Most of our present socialistic projects are possible only because of government credit, which in turn depends upon stored up wealth and national income. When this stored up wealth gets low and the national income fails to meet the bills, credit will disappear—and then how will we meet the expense connected with these "Security" Acts.

9. The general practitioner has a large enough load on his back at present without saddling any more experiments upon him. Let us not depend upon the promises of any party, but concentrate upon our own local representatives and senators.

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#### CARCINOID TUMOR OF THE APPENDIX REPORT OF A CASE

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In 1888, Lubarsch, who believed carcinoid tumor of the appendix to be malignant and primary, first described this interesting pathological entity. Later, Oberndorfer gave them the name carcinoids. The typical cells were first described by Kultschitzky in 1897, and in 1905, Schmidt restudied them. Since that time, the tumors have been studied by many investigators both here and abroad. As a result, the characteristic features were early worked out, but a great deal of controversy arose regarding the nature and origin of these tumors. The cells have a peculiar affinity for silver salts and reduce solutions of silver, thereby meriting a new name of argentaffine tumors. This feature has further confused the issue, because a new controversy arose as to whether or not the tumors are endocrine in origin.

Carcinoid tumors are now known to be benign. In 1911, MacCarthy and McGrath found only 22 cases of carcinoma of the appendix in the routine examination of 5000 appendices at the Mayo Clinic. Raiford reports 29 carcinoids of a total of 1611 tumors of the gastrointestinal tract from the Johns Hopkins Hospital, an incidence of 0.18%. There were 62,000 specimens of all kinds examined. The rather uncertain char-



acter of this tumor remained in a confused state until the meeting of the German Pathological Society in Dresden in 1907, before which Oberndorfer discussed the subject in detail, and came out clearly and unreservedly for a separation of this tumor from true carcinomata, and placed them in their own group, and also proposed the name carcinoid. Carcinoids are found throughout the entire intestinal canal. Metastasis from tumors of the appendix are rare, but if they do occur are usually local to the cecum or terminal ileum. Metastasis will occur if the tumors arise from the stomach or large bowel.

*Age Incidence, and symptoms.* Carcinoid tumors are usually found in individuals in the third decade. The average age is twenty-five years. They grow slowly and give rise to no characteristic symptoms. This gradual growth produces a gradual obliteration of the lumen of the appendix giving rise to symptoms of acute appendicitis. It is during the routine examination of appendices that the tumors are recognized. Acute attacks may subside, only to return at some later date. It is then, if not during the first attack, that the appendix is removed. The organ usually presents a bulbous enlargement of the tip which is very characteristic, and leads the operator to suspect some tumor mass. Sectioning the bulbous enlargement shows that the lumen is completely obliterated, and filled by a smooth clear mass presenting a yellow color. Metastasis may be present to the regional lymph nodes and rarely to the liver. The tumor may invade the lymphatics or blood vessels. The tumor mass arises from the submucous coat.

*Histological appearance.* The tumor consists of masses of spheroidal or polyhedral cells with granular or finely vacuolated cytoplasm. These cells are rich in lipoid similar to that found in the adrenal cortex, and it is to this that the yellow color of the tumor is due. The tumor cells are usually confined to the mucous and submucous coat, but they may reach the serous coat. Masson has carefully studied this subject, and there may be a relationship between carcinoids and the argentaffine cell neuromas which he has described. These neuromas consist of palisade, columnar, round or polygonal cells. There is a proliferation of the muscularis mucosa with vacuolation and fine granulation of the protoplasm. The granules of carcinoids are chromaffin, and the vacuoles are filled with doubly refracting lipoids. The drop-

lets in the vacuoles stain bright red with Scarlet Red and Sudan. The droplets themselves are not doubly refractive but contain crystals which look bright with crossed Nicol prisms. The droplets probably consist of a mixture of neutral fats and cholesterol.

The walls of the vacuole contain lecithin. The granules stain black with iron hematoxylin like those of the adrenal medulla. The granules possess argentaffine and silver reducing properties. There is no possible identity between carcinoids and the adrenal paraganglion. The cells from which the carcinoids arise are the cells of Nicolas-Kultschitzky. There are five to ten of these cells in each gland of Lieberkühn where they are most numerous. The cells are conical, with either a round or oval nucleus. The Golgi apparatus is found in the supranuclear region, (Cordier). The basal region contains tiny granules which are acidophil, chromaffin, stain with iron hematoxylin, and reduce silver. The cells are and have endocrine function. The granules disappear on injection of pilocarpine.

Argentaffine cells enclosed in nerves result from intranervous budding from the glands of Lieberkühn. Migration is preceded by dislocation of the cells of the bud which, when liberated, seem to insinuate themselves between the nerve fibers. Carcinoid cell columns result from proliferation of intranervous argentaffine cells of neurocrine type. These cells, piled up in the nerve fibers, finally rupture their sheaths and infiltrate the interstitial tissue of the neuroma, then that of the submucosa. These neurocrine cells proliferate in the connective tissue and assume characteristic appearance of carcinoid cells. Proliferating in such an abnormal medium as connective tissue, the neurocrine cells group themselves like ordinary endocrine cells.

The intranervous argentaffine cells spring from the epithelium that lines the bottom of the Glands of Lieberkühn. The intestinal cells bud out and grow into the nerves. Here they become argentaffine. They differentiate into various forms: cylindrical cells grouped in rosettes or vesicles; cells of ganglion type; of Schwannian type; and neurocrine cells. The nerves containing them grow and become neuromata, or disappear if the cells themselves disappear.

#### REPORT OF CASE

Mrs. M. R. S., aged 28 years; fourth child in a family of 18, 14 of which are living today. The father



at 55, and the mother at 53 are living and well. She was born in Chicago and had the usual childhood diseases. There were no operations, fractures or accidents. The menses began at 13, were regular 28 day cycle for four days with no cramps or backache. The menstrual cycle increased to 30-31 days following the birth of the first child. She has been married for seven years, and is the mother of four children. On June 12, 1933, when full term, she had a severe pain in the lower abdomen which was mistaken for labor pain and she was rushed to the hospital. The pains disappeared and she went home. On June 13, 1933, the pains reappeared and she was delivered after a short labor of a male child. The next year, June 21, 1934, she was delivered of her 4th child. There were no complaints since her last baby was born. She began to menstruate two months later and was regular since then.

About ten A. M. on March 23, 1935, while working at home, she lifted a boiler of wash off the stove and immediately began to menstruate whereas she had just stopped flowing that morning. The previous period started Feb. 17, 1935 and continued for 5 days. She ate some cornflakes and a bowl of milk thereafter. About 11:30 A. M. she was seized with severe cramps in the lower abdomen, without vomiting or nausea. This attack resembled the one in June, 1933, but was greater in intensity. However, she kept right on working. She consumed a cup of tea and toast at noon. The cramps remained all afternoon without relief. At 6:30 P. M., she ate two pork sausage patties sandwiches with French fried potatoes. She felt tired a half hour later and this tired feeling persisted until 8:00 P. M. when she had a sudden severe and sharp pain in the right lower quadrant and she could barely walk. There was no nausea or vomiting. She went to bed, and the pains became lesser in severity. At 9:30 P. M. she vomited the supper meal. On examination soon after the temperature was 98.4, pulse 104. The physical was negative except for rigidity and tenderness over the right lower quadrant. A diagnosis of acute appendicitis was made, ice bags were placed over the abdomen, and she was given a sedative for sleep. She spent a very restless night. March 24, 1935, the temperature was 98.4, pulse 106, and the patient looked acutely ill. The white count was 21,200 with 90 poly's and ten lymphs. A vaginal examination was negative for anything in the pelvis.

At noon, March 24, 1935, she was operated upon. Through a right rectus incision, the appendix was located. The tip of the appendix was distended into a bulbous mass twice its normal size, and acutely inflamed and congested. The appendix was removed and the stump inverted. The right ovary was easily seen in the wound and contained a cyst about the size of a pigeon's egg. After some hesitation, the ovary was resected and the cyst removed. The abdomen was then closed in layers without drainage. On April 1, 1935, the sutures were removed and she left the hospital on the ninth day. Repeated examinations have found her in excellent physical condition, and a follow up done on

July 26, 1935, shows her still in excellent physical condition, and with no complaints.

Pathological examination of the tissues, done by Dr. I. Pilot:

Gross Description: The appendix was 4cm long by 1cm in diameter. The wall is edematous; the serosa engorged. Sectioning shows yellow tissue in the mucosa and submucosa. The portion of the ovary shows a follicular cyst.

Microscopic Description: The lumen is narrow with the mucosa ulcerated. The submucosa and serosa are edematous and densely infiltrated with polynuclears. The mucosa and serosa present numerous islands of carcinoma cells of the small round cell type. There was no mitoses.

Pathological Diagnosis: Acute suppurative appendicitis superimposed on a carcinoid tumor of the appendix. Follicular cyst of the right ovary.

*Comment.* This patient had an attack of appendicitis at term which was erroneously diagnosed as the onset of labor. In all probabilities, the carcinoid tumor existed at that time. The attack precipitated the onset of labor on the following day, and after the delivery the appendiceal flareup disappeared. At the next attack, the appendix was removed and the carcinoid tumor discovered. The tumor gave rise to no special symptoms and was discovered on postoperative examination by the pathologist. This fact brings to our mind the great importance of a close cooperation between surgeons and pathologists at hospitals. The pathologist is ever ready to cooperate, but some attending men perhaps through a sense of being thought incapable, fail to bring their problems to the pathologist.

#### SUMMARY

1. A case of carcinoid tumor of the appendix is presented, and the important work of Pierre Masson on the subject is briefly discussed.

2. The tumor was discovered in the course of a routine examination of a specimen with typical acute suppurative appendicitis.

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## QUALITY OF MEDICAL SERVICE

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Contrary to opinions frequently expressed, there is no significant difference in the quality of medical service which physicians are able to render in one part of the state as compared with another. The medical profession in the big population centers is no better than that in the smaller communities and rural districts, so far as the general needs of the people are concerned. Hospital and laboratory facilities are generally more adequate in the larger cities but the ability of physicians to make a diagnosis, to successfully meet emergency situations and to prescribe appropriate treatment varies within remarkably narrow limits throughout the state.

These conditions seem fully justified on the basis of a series of studies recently completed by the State Department of Public Health. For this purpose the mortality over a five year period from four non-communicable diseases appendicitis, chronic nephritis, diabetes and tetanus, was studied. The state was divided in three almost equal geographical areas, the northern, central and southern.

For the five years, 1928-1932, inclusive, the average annual death rate, 17.3 per 100,000 people, from appendicitis in the northern area, which includes Chicago, was slightly higher than that in the central section, 17.1 and sharply higher than that in the southern, 14.1. The rate for 1933 was almost exactly the same in the northern and southern sections, 15.6 and 15.7, respectively, and only slightly higher, 16.9, in the central.

It is generally recognized that early diagnosis followed by prompt surgical treatment is the most effective way to control the death rate from

appendicitis. In spite of the fact that hospital facilities are more adequate in the northern and central areas of the state, the southern section has the lowest death rate. While studies have shown that mortality from appendicitis is noticeably higher in certain states west of the Mississippi than in other parts of the United States, the reason ascribed is the lack of hospital facilities rather than a greater prevalence. There are no grounds for believing that the incidence of the disease differs greatly among people in different parts of Illinois. The evidence, therefore, indicates that physicians recognize appendicitis and prescribe proper treatment with as much success in the sparsely settled southern part of the state as in the metropolitan area along the shores of Lake Michigan.

Mortality from chronic nephritis has declined noticeably in Illinois since 1928. Improvement has taken place in all three sections of the state. In the northern section the rate fell from 126.5 per 100,000 people in 1928 to 97.7 in 1932 and 93.5 in 1933. For the southern section the corresponding rates were 109.9, 94.1 and 88.0. In the central section the rate fell from 130.2 in 1928 to 112.0 in 1932, but then went up to 115.7 in 1933. The rate in the central section has been persistently higher than in either of the other two but the downward trend in all three has been remarkably similar except for the 1933 upturn in the central section.

Age is probably as great a determining factor as anything with respect to this disease. Older people, no matter from what fundamental cause, are more liable to the disease than younger ones. The fact that the mortality trend has been so nearly the same in each of the three geographical areas indicates that physicians in each section know what they are about and recognize the disease with equal readiness.

While not communicable, diabetes varies in prevalence, considerably. Jews, for example, are more prone than gentiles to the disease. The dietary habits of a considerable proportion of city folks probably predispose to this ailment. Thus it was no surprise to find that a higher mortality from diabetes prevails in the northern and central than in the southern section of the state, the respective average annual rates for the five years being 25.2, 24.1 and 20.3. A sharp upward trend took place in the northern and central sections and a slight rise in the southern.



Here again the evidence indicates that physicians are equally able in the three areas to recognize and treat the disease properly.

The germs of tetanus are found principally in the soil and especially in garden soil fertilized by manure. The normal habitat of the germs is in animals, more particularly the horse. Humans become infected when wounds permit infected soil to get into the blood stream through the skin. In the light of these facts one would expect more tetanus under modern conditions in the sparsely settled areas where horses and cattle are found in the greatest number.

This is exactly the case. The average annual death rate per 100,000 people in the southern and central sections was 1.5 and 1.3, respectively, against 0.7 in the northern. A downward trend has marked the course of the disease in all three areas.

These studies show clearly that there is but little difference in the quality of medical service found in the different parts of the state. Physicians recognize diseases accurately, on the whole, and prescribe equally effective treatment. It is probable that patients will gain little or nothing by traveling great distances in search of superior medical talent except those few who are referred by local physicians to specialists. Most physicians know quite well their own limitations and are quick to refer patients to well qualified specialists when that is necessary for the best interests of the patients.

The statistical data upon which these conclusions are based appear in the accompanying table. The northern geographical section is made up of 33 counties, the central 35 and the southern 34.

DEATHS AND RATES PER 100,000 PEOPLE  
BY SECTIONS IN ILLINOIS  
NORTHERN SECTION

	Tetanus		Diabetes		Appendicitis		Chronic Nephritis	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1933	.... 24	0.4	1568	27.8	879	15.6	5276	93.5
1932	.... 13	0.2	1549	27.7	854	15.5	5471	97.7
1931	.... 35	0.6	1497	26.5	973	17.5	5674	102.2
1930	.... 42	0.8	1261	22.8	963	17.5	5697	103.4
1929	.... 50	0.9	1340	24.8	1000	19.0	6325	117.2
1928	.... 56	1.1	1291	23.8	970	18.3	6684	126.5
*	....196	0.7	6938	25.2	4760	17.3	29851	108.4

CENTRAL SECTION

	No.		No.		No.		No.	
	Rate		Rate		Rate		Rate	
1933	.... 12	1.0	291	25.5	194	16.9	1324	115.7
1932	.... 18	1.6	315	27.5	190	16.6	1282	112.0
1931	.... 12	1.0	277	24.0	217	19.0	1265	110.6
1930	.... 18	0.6	260	22.7	218	19.0	1445	126.3
1929	.... 14	1.2	260	22.7	171	14.9	1508	131.8
1928	.... 14	1.2	268	23.4	181	15.9	1490	130.2
*	.... 76	1.3	1380	24.1	977	17.1	6990	122.2

SOUTHERN SECTION

	No.		No.		No.		No.	
	Rate		Rate		Rate		Rate	
1933	.... 10	1.0	185	18.8	155	15.7	866	88.0
1932	.... 10	1.0	215	21.9	125	12.7	924	94.1
1931	.... 9	0.9	212	21.5	153	15.6	927	94.6
1930	.... 14	1.4	186	19.0	145	14.8	1049	107.3
1929	.... 17	1.7	189	19.0	127	13.0	1000	102.4
1928	.... 22	2.3	191	19.5	137	14.1	1070	109.9
*	.... 72	1.5	993	20.3	687	14.1	4970	101.6

STATE TOTAL

	No.		No.		No.		No.	
	Rate		Rate		Rate		Rate	
1933	.... 47	0.6	2044	26.3	1228	15.8	7466	96.1
1932	.... 41	0.5	2079	26.8	1169	15.1	7677	99.4
1931	.... 56	0.7	1986	25.7	1343	17.5	7866	102.4
1930	.... 74	0.9	1707	22.3	1326	17.3	8191	107.3
1929	.... 81	1.8	1789	23.9	1298	17.3	8833	117.5
1928	.... 92	1.2	1750	23.7	1288	17.4	9244	124.9
*	....344	0.9	9311	24.4	6424	16.8	41811	113.0

\*Total number and average rate five-year period, 1928-1932.

CAVERNOUS HEMANGIOMA  
RADIUM TREATMENT

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*Definition and Occurrence on the Skin:* Cavernous hemangioma is present at birth or appears shortly after as a raised, strawberry colored, compressible blemish. It grows larger in all dimensions during the first six to ten months of life. This strawberry or raspberry birthmark is composed of enormously enlarged thin-walled abnormal capillaries, arterioles, and venules. The lesion is seen most commonly on the face, forehead, scalp, arms, and chest and less commonly on the legs and buttocks. The size of the angioma varies from 2 to 3 cm. in diameter at the bluish elevated base with a red cap to such enormous dimensions as 10 or 12 cm. in diameter with a 2 cm. depth, often with an ulcerated central area which may ooze blood and serum.

*Clinical Considerations:* The smaller lesions on exposed portions of the body present a cosmetic problem chiefly. However, lesions as small as 1 cm. in diameter at birth present a gross cosmetic problem in adult life, if left untreated. The larger lesions present a serious menace in view of ulceration, infection, and susceptibility to trauma. The larger lesions may later be a part of permanent derangement of the circulatory mechanism of the involved part. This derangement seriously impairs function in the adult if an arm, leg, or an appreciable portion of the face is involved. In later adult life the venous enlargement leading to circulatory stasis with engorgement and edema resulting in marked disability follows the neglect of a caver-

nous angioma of size, especially in an extremity.

Deep seated or internal angioma is not commonly diagnosed except at operation or in instances of grave symptomatology resulting from the lesion. Co-existence of cavernous hemangioma and lymphangioma is occasionally seen about the mouth, usually involving the tongue, lips, or cheek. Angioma not infrequently involves the mucous membrane of either lip or cheek. The pathology may extend from mucous membrane to skin. It may be situated on the eyelids, the ear, the vulva, or it may involve the fingers or toes, completely surrounding them.

**Radium Treatment:** Radium treatment of cavernous hemangioma is completely successful in a high percentage of accessible lesions. The technique of choice is external, short distance, well screened radiation at regular intervals until the lesion has practically disappeared. The most important criterion for a successful outcome is early treatment—*before the age of three months, preferably by the age of three months.* Angioma in children of three years of age or more yields slowly and less completely than in infants. The duration of the treatment, the amount of radium, and the expense increase considerably with age. In adult life radium therapy is of little avail.

**Reactions to Treatment:** No reaction is experienced or expected at any time. Treatments of ten to twenty hours' duration are superior to two or three hour exposures when the same total dosage is delivered in each instance. Ingenuity is required in treating lesions of the mouth, the vulva, and buttocks while applications to the face, scalp, chest, and extremities present few difficulties. Attempts to hasten the treatment by frequent or heavy applications lead to unnecessary reactions such as mild erythema, bronzing, or epilation—complications which are needless, distressing and which are to be scrupulously avoided.

**Undesirable Techniques:** Interstitial applications of radium or radon are said to hasten the end result. Embolism at rare intervals complicates this form of irradiation and seems unjustified when excellent cosmetic results may be obtained without risk by the short distance, external method of treatment.

Contact or near contact applications of unscreened or lightly screened plaques may obliterate the superficial vessels of the skin quite satisfactorily but the deep-lying subcutaneous pathol-

ogy escapes sufficient irradiation, thus remaining to become the cause of deformities and recurrence. The hard gamma rays must reach the depth of the lesion in sufficient amounts to obliterate every portion of the angioma.

**Results:** The end result in practically every case of cavernous hemangioma properly treated with radium in infancy is a normal skin leaving no signs whatever of the previously existing birthmark. The cosmetic result is usually perfect.

**Typical Case Histories:** Typical case histories from the author's private practice follow:

1. Baby B. Lesion on right costal margin measuring 6x6x1.5 cm.; red, raised, compressible strawberry mark. Treated from 4/1/30 to 1/27/33 with 21 treatments, averaging 450 mg. hr. each, with a total of 9350 mg. hr. 3/1/33 Lesion completely disappeared; no scarring.

2. Baby K. Lesion is a strawberry mark measuring 1x0.5 cm. There is present a bluish, elevated base measuring 2x1.5 cm. Treated from 4/10/31 to 10/14/32 with 16 treatments, averaging 350 mg. hr. each, a total of 5750 mg. hr. 12/1/32 Lesion completely disappeared.

3. Baby M. Raspberry mark 1 cm. in diameter, elevated 0.5 cm. Treated from 6/23/31 to 6/23/32 with 11 treatments, averaging 300 mg. hr. each, a total of 3125 mg. hr. 8/1/32 Complete obliteration.

4. Baby S. Lesion is a raspberry mark involving the three lateral fingers and the palm of the hand from the first metacarpal joint backward into the palm and dorsum of the left hand. Treated from 2/12/30 to 3/24/31 with 12 treatments, averaging 300 mg. hr. each, a total of 3500 mg. hr. 5/1/31 Complete obliteration.

5. Baby E. Lesion in the right temple region measuring 2.5 cm. in diameter, with irregular border 3 mm. thick. There is present a slight central scarring due to a previous ulceration. Treated from 10/15/28 to 11/2/29 with 13 treatments averaging 500 mg. hr. each, a total of 6500 mg. hr. 1/2/30 Complete obliteration with faint scar marking site of old ulceration.

Baby B. Lesion is an angioma of the lip involving the skin and mucous membrane measuring 1 cm. in diameter. Treated from 3/25/30 to 11/24/30 with six treatments, averaging 450 mg. hr. each, a total of 2600 mg. hr. 1/2/31 Lesion completely disappeared.

**Note:** These case histories represent more or less typical cases. There have been no complications of any sort, no reactions, and completely satisfactory cosmetic results were obtained in all.

#### CONCLUSIONS

1. Cavernous hemangiomas occurring in infants on exposed portions of the body are best treated with radium in conservatively applied,



frequently repeated, sub-erythema doses of radium.

2. The end results in the treatment of lesions in infants is invariably completely satisfactory from the cosmetic standpoint.

3. These lesions should be treated as soon as possible after discovery to obtain the best results.

4. Lesions allowed to persist until adult life present far greater difficulties and require other methods of treatment than irradiation.

180 N. Michigan Avenue.

#### A MENTAL PICTURE OF THE SURGICAL CLINICS DURING THE PAST FIFTY YEARS AS OBSERVED BY AN INTERNIST—RETROSPECTIVELY

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MIAMI, FLA.

On a recent June morning, beautiful and cool, I left my hotel and walked leisurely to a nearby hospital. On arriving there, I observed that none of the attending physicians were in sight, so at the reception-room desk I inquired their whereabouts, and was graciously informed that they were all in the Surgery. The elevator quickly brought me up to the surgical floor, where I walked slowly to the operating-room, and, on opening the door, I beheld, with solemn awe, one of the most beautiful, the most chaste, the purest, the sweetest, the most heavenly picture it is given any human mortal to witness. In that operating-room, which was brilliantly illuminated with electric lights, a group of surgeons were operating on a patient. All were invested with spotless white raiment, covering the entire body, from the head over the eyebrows, from the bridge of the nose down, and from the temples back, leaving only the eyes exposed—the whole body was enveloped in immaculate white. Two nurse-attendants, clothed also in crisp white gowns, with only their clean, sweet, oval, Madonna-like faces left uncovered, complemented this divine picture. As I meditatively entered this medical sanctuary, consecrated with blessings conferred by thousands of happy souls that have emerged herefrom with healed bodies and rejuvenated spirits, not a word was spoken to me, not even a greeting sign extended to acknowledge my presence, although

I was well known to all of the attending group. Here before me, were eight souls merged into a single mind, pondering the sole question of, "How much good can we, poor human mortals, do to physically help this unfortunate individual?" During the entire operation not a human sound was uttered nor a single word spoken as these automatons in white, like celestial visitants, moved about in absolute silence, working harmoniously and efficiently, with Spartan intrepidity, their minds focused intently on the patient. And it was not until the operating surgeon put down his scalpel or forceps, stepped away from the side of the patient, removed his gloves, took off the coverings from his face, did he greet me with: "Hello, Doctor! How are you?" Such a serene, sanctified scene can now be seen almost daily at any hospital throughout our country, nay, all over the civilized world. I shall always cherish this lovely, hallowed picture, enshrined in a halo of adoration, in my mental album; and will now describe some additional reminiscent portraits as they flash across the screen of my memory.

Incidentally, I now wish to add one, perhaps two sketches, which do not come under my collection of mental pictures—do not belong to my mental scrapbook, but which have an explanatory bearing on this subject. These pictures date back about 100 years, so belong to the nineteenth century, terminating in 1850, the middle of the century. The nineteenth century is known, in the medical world, for its discovery of anesthesia and its work in the field of asepsis, which was before the medical profession could reason out the cause of either acute or chronic diseases. I desire to present here a true American physician, Dr. Oliver Wendell Holmes, and to place his picture in a high niche of honor, where it justly belongs, as he is not sufficiently venerated. In 1838 Dr. Holmes offered a paper on "puerperal fever," pointing out the genesis of puerperal disease,—a suggestion which was then considered puerile, visionary, and even such leading gynecologists as Drs. Meigs and Pepper criticized it quite severely. The companion picture, a co-worker in this group, was then offered at Vienna, in Europe, where a Dr. Ignaz John Semmelweis first pointed out that puerperal infection was brought into the parturient woman by the hands of the accoucheur, toxic material

from without. These two physicians, the one here in our country and the other in Europe, belong to the same class. They were not known to each other, although Dr. Holmes mentioned a physician in Vienna, but of whose name he was uncertain. They were pioneers in the fight for asepsis, and not sufficient homage is given to either. Here, in our country, we do not pay sufficient reverence to the memory of Dr. Oliver Wendell Holmes. When we refer to the beginning of exact medical science, to the observations of disease as a distinct entity, we usually mention French, English, German, or other foreign scientists or investigators, forgetting that here, right at home, we can honor the memory of one whose observations in the field of medical truths antedates any and all of these European investigators.

These last two relative pictures that I have added to my accumulation of mental surgical holdings belong principally to the first half of the nineteenth century; and I shall now complete my mental album of that century with a few composite pictures gleaned from the kaleidoscopic impressions received during fifty years of personal observation, when I was a student at the old Rush Medical College and, later, as a member of the teaching staff.

During that time, on most any afternoon when the weather permitted, along Michigan Avenue could be observed a commanding figure, a Major General, erectly mounted on a high-stepping black charger. This graceful equestrian was appropriately garbed in riding jacket, breeches, and a striped riding cap, with high boots shining and silver spurs scintillating in the bright mid-afternoon sun. He was an excellent horseman and presented a striking appearance as he cantered down the boulevard, occasionally flicking his horse's flanks with his riding whip, to accelerate its speed. This man was well known to every citizen as Dr. Moses Gunn. He was the teacher and Professor on Surgery at Rush Medical College. Frequently, he would jump from his horse and come directly into the arena to lecture, beginning just where he had left off at his last lecture. If the gong, the signal that his hour was up, had cut short his previous lecture, even in the middle of a sentence, he would start his next lecture by finishing this interrupted sentence. Often, in his

Saturday afternoon surgical clinics in the upper amphitheater, after dismounting he would step right up to the patient to be operated on. He was the idol of all the students, and they considered his procedure in the surgical room the proper course to follow.

Another mental facet from memory's notebook, which I now wish to present, would be thought exceptional at this time, but was then considered good surgery by the student body because this particular operator—our idol, our hero, performed the work. However, we must admit that perhaps today what we offer would not be considered as good surgical practice. A patient was brought into the arena, anesthetized, suffering from a necrotic lesion of the middle portion of the femur. Then the operator came into the arena, seated himself beside the anesthetized patient; his hands were washed. He put the index finger of his right hand over the sinus opening of the exposed parts of the thigh, felt for a few minutes, then took a scalpel, made an incision through the skin down to the bone over the necrotic area, thrust his index finger into the wound to widen the opening; then, again, he took up the scalpel to deepen the incision, but, instead, this time he placed the scalpel—not on the table, but between his teeth and held it there, and with his index finger in the incised wound he again reached for the scalpel from between his teeth, made the incision a little larger, returned the scalpel again to its place between his teeth, and began the removal of pieces of necrotic bone. To most of us students this was considered heroic surgery, proper surgery, and as our idol did it, it was considered the lone, the true surgical way. Asepsis in surgery was then not known as we know it today; but long before the death of this good man and teacher, this noble soul, Prof. Moses Gunn, he became well acquainted with the true method of aseptic surgery as it is now in vogue.

We now present to you another vignette from this mental album. During the 80's much was said and debated about the surgical teachings known as the "Lister" method of surgery; and some of the members of the Cook County Medical Society deemed it expedient that one of the members, in good surgical standing, be sent to England to learn the *modus operandi* of this method and bring it to Chicago, to disseminate



this surgical knowledge to the members of the Medical Societies. As Dr. William T. Belfield, a promising surgeon, a bright student and able practitioner, was about to go abroad and would remain some months in England, he agreed to acquire the technic and bring this knowledge to Chicago. He returned in about four months, when arrangements were made for him to demonstrate the Lister method in the upper amphitheater of the old Rush Medical College. The Lister Clinics were heralded through the daily press and the medical bulletins, with the time specified when they would be conducted; and so, on a Saturday morning, in the upper amphitheater of the Rush Medical College, the anesthetized patients were brought in, and Dr. Belfield demonstrated to us the Lister technic. The patient being in the arena, the parts of the body to be operated on were cleansed with soap and water, and, before the operator could use the scalpel, four assistants—one at each of the four corners of the operating-table, the four points of the compass—each holding in his hands an atomizer filled with a 0.5% solution of carbolic acid, started spraying the solution over the area on which Dr. Belfield was to operate, and continued the spraying during the entire time of the operation, the operator covering his mouth and face during the procedure with a moist towel covered with rubber sheeting. Two mornings were devoted to these demonstrations; and, as I was quite near the operating table, a physician near me asked my opinion concerning the proceedings. I answered that I did not know, but that it did seem to me a most reasonable treatment. Even at this late date I distinctly remember him—believe he was gynecologist of foreign birth, a Dane or a German. He said to me: "Let me tell you there is nothing to this whole thing. This is what I use," and, reaching into his coat pocket, he brought out a common, ordinary hand-brush; "this beats them all. It will do the trick!" Dr. Belfield, a capable, intelligent physician, died early in his career—a great loss to the Chicago Medical Society and to the medical profession throughout the country.

Now, to my mind, this "common, ordinary hand-brush" should have a conspicuous place assigned in this mental art gallery. It should be encircled with a radiantly illuminated halo!

It is the first aid to the present operator; and ever since aseptic surgery has come into existence, this hand brush is the first thing the surgeon reaches for when he is preparing himself to perform an operation. The surgeon has saved more human lives, lessened more pain, more suffering, by its use than all the directions, prescriptions and instructions given for the eradication and destruction of the disease-producing germs.

The next pictorial illustration from my mental etchings is a sensational one, resembling a dramatic, theatrical, radio, or cinema production. In my first picture, the supreme, the sublime, the divine one, not a word was spoken in this sanctuary of tranquil quietness, where the operating-table was a shrine and the patient worshipped as a holy object of reverence; where silence became a fetish, a symbol of faith. But in this, my last mental picture presented here, from the very beginning of the operation, through to its completion, the spoken word, mounting even at times to eloquent oratory, was the prevailing custom. First, the surgeon would explain the reason necessitating the operation; then, next, his method of procedure would be demonstrated, and every motion made with the scalpel was vividly described in detail. Here the technic was most dramatically and minutely emphasized by the late Dr. Nicholas Senn. Usually, during his Saturday afternoon surgical clinic, also in the upper amphitheater of Rush Medical College, he would operate while speaking, often very fluently and at length, before an overflowing house. Every seat in this large class-room, seating about 500 persons, was taken; all the available floor space was occupied, not even standing room remained. On Saturday afternoon Dr. Senn would begin operating promptly at 2:00 o'clock, continuing up to and often past 7:00 o'clock in the evening. At about 4:00 o'clock there was an intermission of about fifteen minutes, when Dr. Senn would very slowly sip a cup of hot chocolate, which had been prepared by a nurse at the Presbyterian Hospital. Later, similar clinics were organized all over our country, also even here in our own city; but none has ever equalled him in his clinical teachings, to say nothing of having excelled him. He was a master surgeon, a competent physician, and an able pathologist—three

qualifications seldom found in one man. While operating, if it was deemed necessary to make a biopsy and the stained specimens were returned to the operating-room on portable microscopes before they were passed around to the visiting physicians, he would scrutinize them closely, from which examination he was able to demonstrate skillfully his pathological knowledge. He would remark: "If you look at 10:00 o'clock you will see a bunch of cells: they are normal cells, but they are in the wrong place. These are known, according to the Cohenheim's theory, as 'Cohenheim's carcinoma cells,'—that gives one the diagnosis. If you look now at 4:00 o'clock you will find a similar group of cells; these are perfectly normal, the tissue is congested, and many blood vessels can be seen." He would then pass the microscope to his right, take the second microscope, read its meaning and pass it to his left.

In 1889 Dr. Nicholas Senn was appointed clinical teacher at the Rush faculty of surgery, not as a surgeon of the clinic, but only teaching the principles of surgery. As no opportunity was offered him in this position to demonstrate his clinical knowledge as a surgeon, he resigned in 1891. A few months after his resignation, the then clinical Professor of Surgery at Rush, Dr. Charles T. Parkes, passed away, and soon thereafter Dr. Senn was recalled to Rush and installed as full clinical surgeon. As Dr. Senn loved things military, he at once instituted a clinical method along military lines, which soon led to his conducting the largest surgical clinics in our country.

Dr. Nicholas Senn was a true Chicago production. Of Swiss birth, he came to this country when a small boy, his parents locating in Wisconsin. When a young man he taught school and read medicine, as was then customary, with a preceptor; later, he came to Chicago, where he entered the Chicago Medical School, now the medical department of the Northwestern University, from which institution he was graduated; and for nearly two years thereafter he devoted his time at the old Cook County Hospital at 18th and Arnold Streets. Dr. Senn was a self-made physician and surgeon, and as a teacher he had no peer. His delivery was forceful and his English pure.

These mental portrayals are drawn from my

recollections after more than fifty years of observation in the medical field, one-half of which were during the last twenty-five years of the last century and the other half during the first twenty-five years of the present one. These observations were made, first, here in Chicago, while a student at the old Rush Medical College; then as a teacher and instructor at Rush; and now as a retired physician.

In this series of mental portraits delineated here, I still maintain that the first one depicted, but the last in my observation, representing the present surgical course, is the sweetest, the most humane. In most of my mental pictures, the operator appears to be the main actor in this drama—the hero; but in the pictures as we see them at the present time at the surgical clinics of any good hospital, the unfortunate victim on the operating-table is now the hero, the sole object of consideration.

2370 S. W. 23rd Terrace.

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#### THE ROENTGEN TREATMENT OF UTERINE HEMORRHAGE, AMENORRHEA AND DYSMENORRHEA

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When my very good friend, the Secretary of this Section, invited me to present a paper before this Section, I promised myself that I would discuss a subject which would be of interest to the general practitioner as well as to radiologists, and while musing over what to decide upon I concluded from my own experience and what we see every day, that the pains, aches and monthly distress of women, from puberty to the menopause, would be a most appropriate subject.

Being a radiologist, I naturally approach the subject from a radiologist's point of view; so I will try to tell you how and why I think that roentgen ray therapy is the best and most desirable method for the treatment and alleviation of uterine hemorrhage, amenorrhea and dysmenorrhea.

The treatment of these gynecological conditions by radiation is attracting more and more



attention and interest from the general practitioner of medicine, and justly so.

The use of the roentgen rays as a therapeutic agent in the pelvic conditions in women is not at all new. In fact, so much has been presented before medical meetings and published in the medical press, that I shall not pretend to offer you anything new or novel; but will try to present some of the arguments in a new way, and remind you of some of the important elements of the subject, which should be considered in connection with every case of these common, ever present, but none-the-less painful and debilitating conditions.

After the extended and exhaustive experiments and experiences of Foveau de Courmelles, Longfellow, Albers-Schonberg and other early workers with the roentgen rays, followed later by the numerous clinicians and pathologists, we find that we have learned a great deal about how and why we may produce definite clinical results and effects, modify certain functions and malfunctions, and cause certain organs to act in certain ways and react to the effects that we cause them to. While we have accomplished much in the production of certain organic and tissue reactions, in regard to the subject of this paper, we must frankly admit that we have not progressed very far as regards the precise and exact causes of some of the effects which we produce.

Our experience thus far has proven in a conclusive and certain manner, that certain menstrual disorders, such as uterine hemorrhage, amenorrhea and dysmenorrhea, either during or between the menstrual periods, may be favorably influenced by relatively small doses of the roentgen rays.

Primarily, this group of ailments is generally considered to be due to the same etiological cause. The most conspicuous feature of all of this group of female ailments is a deficiency or a more or less absence of control or balance, and absence of the menstrual rhythm. The endocrine glands which influence and regulate the menstrual cycle appear to be out of harmony. They are apparently out of tune with each other and do not act in concert and seem to need tuning, somewhat after the manner of a multi-cylindered gas engine that has had the timing gear slip and is firing out of time.

Oligomenorrhea or scanty menstruation is practically always accompanied by dysmenorrhea, and menorrhagia is likewise usually a more or less painful affair. The most violent menstrual or intermenstrual hemorrhages (menorrhagia or metrorrhagia) sometimes ceases suddenly or alternates with deficient flow, and again recur as severe and oftentimes debilitating hemorrhage.

Pelvic examination frequently reveals only slightly enlarged or tender ovaries, small or moderately enlarged, flabby uteri, and similar minor pathology. The ovaries may be found to contain a few small cysts, etc. It is not at all unusual to find so little departure from normal that we are reluctant to blame the pathology found in the pelvis for the severity of the patient's complaints.

Many of these patients, particularly the younger ones, have lost so much blood that they are anemic, while others who may not bleed so profusely are liable to be mentally depressed, sit around listlessly, or are highly irritable and hysterical. Often they have severe headaches, are nauseated, and all of them fear and dread the coming of their menstrual periods. If they are at school, many of them have to be absent a few days to a week during each menstrual period, while those who are employed are compelled to risk losing their positions, because of their forced absence from their desk or counter. This is of course most true in the obstructive types of dysmenorrhea.

Fortunately, a small proportion of these patients may be relieved by the administration of some of the gland preparations like ovarian, pituitary and thyroid extracts; but so many of them are only temporarily relieved, and because roentgen therapy offers such a high percentage of complete remission of the most disturbing of the symptoms, and a large percentage of complete cures, modern radiologists are now advocating its use in all cases not frankly surgical or presenting surgical pathology.

Naturally, we are asked how is this accomplished and why does roentgen therapy act as a regulator of the menstrual cycle? Frankly, we admit that we do not know exactly how this is done. True, we have a theory, upon which we are working, but until that theory has been proven, all that we might say would only com-

plicate things more and cause unnecessary argument.

Frequently, we apply only small doses of the roentgen rays, and it is often found that with these small doses we effect some of our most spectacular cures.

Primarily, roentgen radiation in small doses is analgesic. It depresses pain. The roentgen rays are *always depressant*. They *never stimulate*. By our therapy we first depress the pain, probably by reducing the pain carrying function of the nerves as well as depressing the production of pain in the sensitive organs where the pain originates.

Roentgen radiation has a selective action upon gland tissue. This was discovered early in the use of roentgen therapy. This is probably in a large measure one of the principal reasons why, during and as the result of our application of the rays to the pituitary, for the control and regulation of the menstrual cycle, we produce at times almost startling results. In effect, we are probably depressing an overactivity of the pituitary gland, which because of its overactivity and overproduction of one of its hormones is causing a disharmony or discord of group of glands which control the menstrual cycle. By this process, we indirectly produce a regulation of the menstrual cycle and all that goes with it to make up normal function of the organs involved.

We realize that if we applied large doses of our radiation, we could produce a complete cessation of menstruation; but we do not need to nor do we want to produce any such pronounced effect unless the condition is so severe and incapacitating as to necessitate it. In that type of case we do not hesitate to produce a menopause.

In some of these cases, we do not irradiate the pelvis at all; but confine our therapy to the hypophysis. These cases are rather the unusual exception; but we have had a few of them. On the other hand, we have had a very considerable number of cases which presented such extreme, agonizing dysmenorrhea, that it was the choice and desire of the sufferers, that we produced a complete cessation of the menstrual function. Under these distressing conditions, we have felt entirely justified in administering enough radiation to produce the menopause. Several of these women have expressed their gratitude in such

heartfelt manner, that we feel that this is certainly a worthwhile procedure.

It may surprise some of you to learn, that in many of our cases we apply only from one-twentieth to one-tenth of a dose (25 to 40 r) to each area treated. As that amount of radiation is far short of the castration dose, there can be little danger of producing a permanent menopause in we have found in some of these patients with dysmenorrhea and a markedly diminished menstrual flow, that irradiation of the pituitary region alone, produces satisfactory results, and in these, we have not felt called upon to administer any radiation to the pelvis. Reasoning from this effect, we have come to the conclusion that we have depressed the pituitary hormone output, which, because of the absence of the excess has permitted the ovaries to function normally. Stating it in another way, we affect the pituitary so as to modify the pituitary-ovarian imbalance, and by so doing permit the establishment of a proper interglandular balance or coordination, which is apparently necessary for the proper regulation of the menstrual cycle.

We realize that this explanation is rather theoretical and possibly unscientific for that reason, and that our therapy is largely empirical. However, unscientific and empirical though it may be, we know that it works for the relief of the suffering women to whom we apply it. We also remember that the administration of quinine and the cinchona preparations was empirical for the many years before the malarial organisms of Laveran were discovered, but it worked. It cured the malaria, just as we cure our patients.

#### UTERINE HEMORRHAGE

In the frankly hemorrhagic cases we generally administer more radiation to the pelvis, and here we have a better and more definite knowledge of what our therapy does to affect the results.

The effects of roentgen radiation upon the pelvic organs in this group of cases are threefold.

*Primarily*, the ovarian function is depressed, and

*Secondarily*, the relaxed blood vessels in the soft boggy uterus are acted upon and reduced in caliber by the production of an endarteritis, while

*Thirdly*, the blood is rendered more coagulable.



These effects are produced by the administration of somewhat larger doses; but in many of these cases, most satisfactory relief from the complaints of the patients are produced by the application of dosage decidedly short of sufficient to produce a permanent menopause. Not infrequently we do produce a temporary amenorrhea, lasting from a few months to a year or even longer; but in most all of these cases, unless we deliberately administer enough radiation to produce a menopause, menstruation is resumed within a year and with a normal flow and absence of distressing symptoms.

*Hemorrhage Due to Fibromyomata.* So many of the purely hemorrhagic cases are due to the presence of fibromyomata or fibrosis of the uterus, that a careful and most searching examination should be made of every patient. As a matter of fact, I am sure that much of my successful treatment of this and other conditions is the direct result of my insisting upon making complete and thorough examinations of every patient who comes under my care.

A summary of the reports of a large number of gynecological clinics and gynecologists, gives us the figures that fibromyomata, as a clinical entity, is the cause of slightly more than 90% of all uterine hemorrhage. With that high percentage to figure on, and the ruling out of malignant disease of the body of the uterus, which from the same sources is figured at 3%, roentgenotherapy may be safely applied, and if the patient is at or near the menopause, an early and easy, symptomless menopause is produced.

*Abnormal Menopause.* There is an increasingly large group of women in whom the beginning of the menopause is marked by a considerable disturbance of the menstrual cycle, accompanied by more or less physical suffering and disability.

In many of these women patients the monthly flow is markedly increased, may recur a day or two after cessation and show other definite abnormalities and irregularities. Most of the medical profession are prone to tell these patients, that "things will come out all right if they wait"; but there is no use or sense in waiting, when they may be speedily and easily relieved *without waiting*.

With most of these irregularities, physical disabilities usually occur, and incapacity and inability to attend regularly to household and social duties are the result. This condition frequently extends over long periods. Two to five years of life like that are not at all unusual, and when complete relief can almost certainly be expected in a short time and without disability or inconvenience, it seems right and just that these patients, so often the best brains of our women, should be given the opportunity to be restored to normal physical health.

In these cases, we unhesitatingly and purposely administer dosage sufficient to produce a complete cessation of the menstrual flow. Our experience shows that this is best done by planning our dosage so as to produce the full effect in from two to six months, depending upon the condition of the patient, physically and mentally. Some of our most gratifying results and most highly pleased patients menstruate only once or twice after beginning the treatment and then pass into a painless, symptomless and uninterrupted menopause.

Martindale,\* a prominent English woman gynecologist, well said, "The menopausal symptoms in irradiated patients are no more severe than, in fact, not as severe as, in those of the normal climacteric.

"The temporary amenorrhea caused by irradiation is a valuable method of treatment in certain cases of psychoses and tuberculosis.

"The risk of malignant disease occurring in an irradiated uterus is no greater than, if as great, a risk of carcinoma occurring in it or any other organ of the body in an untreated case."

It must be borne in mind, in the handling and administration of the treatment to all of these different types of patients, and their ailments, that no two patients can be handled in exactly the same way. No two patients are ever exactly alike. I have had twin sisters, who in every physical way were identical, married the same day, had two children each,—each pair of which were born within one month of each other,—who began their menstrual life within two weeks of each other; but who, when their menopause began were as different from each other as they

\*The Artificial Menopause with Especial Reference to End-Results Obtained by Various Methods of Induction. A Clinical Review of Six Hundred and Twenty Cases; Martindale, Louisa; British Medical Journal, Nov. 11, 1933.

could be, although both of them had abnormal conditions which caused them to be referred to me. Every patient must be handled as an individual and studied as carefully as every other one. The patient must be studied as well as the diseased condition with which she is suffering. We can not, must not, and do not, lay out a definite course of procedure for all patients, any more than can or should a surgeon exactly plan an operation or a medical attendant state exactly how many doses of medicine will be needed to effect a cure of any condition. It is of course unnecessary for me to call your attention to the fact that no one not graduated in medicine and of considerable experience in the handling of diseases of women, can possibly be competent to make a diagnosis in these cases, and that no one except a physician should even so much as attempt to treat them by means of roentgenotherapy. Much more than a superficial knowledge of the use of the roentgen rays is necessary to produce the results that we have a reasonable right to expect in the conditions we have been discussing. With that in mind, we will proceed to summarize and draw our conclusions.

#### SUMMARY

1. Normal menstruation varies considerably, particularly in regard to the amount and duration of the flow; but when after puberty, it is established, it should follow a definite rhythmic cycle.

2. Women who have irregularities of menstruation should be carefully and thoroughly examined by competent, experienced physicians, so as to determine the presence of or to rule out anomalous, anatomic structural, pelvic or general pathology.

3. There is a large group of apparently otherwise normal women, who present no evidence of gross pelvic or other abnormality or pathology but who have markedly irregular and abnormal menstruation, and who suffer severe pain, debilitating illness and serious disability because of same.

Because of the foregoing we present the following conclusions:

Roentgenotherapy intelligently applied, has been found to relieve many hopelessly afflicted women, who would otherwise drag through a life of monthly misery.

Roentgenotherapy, in the conditions here discussed, is safer and in every way pleasanter for the patient than is any other method of treatment. It is applicable to patients who are not good surgical risks. It does not necessitate anesthesia nor absence from the patient's usual occupation.

Roentgenotherapy should only be administered by graduates in medicine, who have had adequate training in radiology, and should never under any circumstances be administered by lay technicians.

#### DISCUSSION

Henry W. Grote (Bloomington): Dr. Trostler kindly sent me his paper several weeks ago and I read it several times. When you read his paper in the JOURNAL, I wish you would pay particular attention to the symptoms of women who have had disturbance. If you will do that and follow up a few cases with treatment, you will certainly discover you have a very valuable method at your command, for aiding women between twenty-five and forty years of age. The Doctor did not mention the frozen pelvis, but the subject is so large he could not cover it in a short time. The relief which can be given these women in fifteen or twenty minutes with a small voltage is remarkable. You may argue that the method is empirical. You can place it on the neurological or endocrinological basis as you see fit. Either will apply because they will dovetail. I am glad Dr. Trostler mentioned the fact it should be administered only by an experienced roentgenologist. In addition, he should add, a man who has had some real actual general experience. Your patients will report they are so much more comfortable you will wonder how it all happened. Then is the time to keep your head since this method is very easily abused and overdone.

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### THREE CESAREAN SECTIONS WITH UNUSUAL INDICATIONS

WALTER W. VOIGT, M.D.

CHICAGO

Cesarean section is to be considered when delivery of the child by way of the birth passages is impossible, and delivery is nevertheless demanded in the interest of mother or child.

With your kind indulgence, I should like to report three cases presenting unusual indications for cesarean section, but in which there was no impediment from the direction of the birth canal, nor any hindrance to delivery from stenosis of the soft parts or from tumors. All three patients were multiparae. In one case, adhesions interfered with the labor pains, caus-



ing a standstill of birth processes; in another, there was a high fever as a result of a cystopyelitis with involvement of the renal parenchyma, and in the third case, a gravidity of seven months, a placenta praevia lateralis resulted in such severe bleeding, at a time when the cervix was permeable for one finger only, that immediate delivery was necessary.

Case 1. The first patient was a para III, whose right ovary, tube and appendix had been removed, and the uterine ligaments shortened seven years previously. Since that time the patient had suffered from menstrual irregularities and severe pains during the periods. This condition was ascribed to adhesions and to hormonal dysfunction. She desired to be rid of the pains and to have another child, a daughter if possible. Vaginal examination disclosed a retroverted uterus, buried in adhesions and barely movable. A long period of diathermy and hormone treatment was successful in rendering the uterus quite movable, the menstruation normal, and eventually the desire of the patient to become gravid became a fact.

During pregnancy she complained of a great deal of pain in the abdomen and suffered from vomiting during the entire course of pregnancy. Since there were no symptoms ascribable to pre-eclampsia, the pains and vomiting were attributed to adhesions. Urine, blood pressure, blood picture, and reflexes were normal. During the night of April 18-19, labor pains set in, accompanied by dripping of amniotic fluid. The patient was sent to St. Joseph's Hospital.

On the morning of April 19, the cervix was completely dilated, but the head remained high up and mobile in a position of left occiput posterior. Weak pains were present and were accompanied by a noticeable retraction of the abdominal wall. In the course of the day the pains entirely disappeared and could not be roused by quinine, solvochin enemas or pituitrin. Since on the following day (April 20) no progress had been made, artificial emptying of the uterus was indicated.

Now the question of method arose. The cervix was completely dilated, the amniotic fluid practically all drained away, and the head mobile in left occiput posterior. Therefore, the methods available were high forceps, version, and cesarean section. The Killand forceps or version would have permitted delivery of the child by the vaginal route. However, the absence of labor pains, induced apparently by adhesions, and the failure to induce them by conservative means, made these two methods seem too hazardous. When the child and after-birth had been removed, how would the placental bleeding be controlled? The adhesions would prevent uterine contractions and it would then be too late for laparotomy. Therefore, as cesarean section seemed to offer the greatest degree of safety as to life for both mother and child, this method was chosen. As a matter of fact, the section seemed to have been justified, since the uterus was found to be grown fast over extensive surfaces to both the front and back walls of

the abdomen, and had to be literally shelled out from the masses of firm adhesions in order to be gotten free. The peritoneal cavity was, if one may use the term in this connection, obliterated, and any noteworthy contractions of the uterus after it had been emptied of its contents, could hardly be expected. Apparently, an uncontrollable hemorrhage would have resulted. The pains were strong enough to dilate the cervix but too weak to drive out the child. After freeing the uterus from its adhesions and removing its contents through what might be designated a "high cervical incision," good contractions of the uterus were secured with pituitrin. Thus was explained the phenomenon of retraction of the abdominal walls during the labor pains. The mother and child did well, the wound healing without incident.

Case 2. The second case was that of a para II in the seventh month of pregnancy. Suddenly at night she noted bleeding and was taken immediately to the hospital. The cervix was permeable for one finger, there was a little blood in the vagina, and pains were absent. The patient was treated expectantly. Pantopon was administered and ice-bags were applied. Suddenly, however, severe bleeding developed, the patient became pale, and her pulse thready. She was delivered within ten minutes, by classical cesarean section, of a three-pound baby. The bleeding was due to a placenta praevia lateralis. The child was nursed through in an incubator. In this instance again, the cesarean section seems to have been life-saving for both mother and child.

This second case is of further interest in that soon after operation an ileus developed and steadily became worse. There was vomiting and enormous bloating. Some years previously this patient also had undergone a laparotomy for retroflexion. The intestines were adherent among themselves and to the omentum, and some of these adhesions had become drawn out into cord-like strands. These adhesions had, of course, been separated at the time of the section. The ileus could not be relieved by either enemas or physostigmin. Gastric lavage resulted in merely temporary relief of the vomiting. Placing the patient in lateral decubitus did not help and she could not be placed on her stomach (abdominal decubitus) owing to the enormously bloated abdomen. Therefore, despite the fact that we had supposed all the adhesions to have been separated during the cesarean operation, intestinal occlusion by means of a strand of adhesion was assumed, and relaparotomy considered. Re-interference, two days after the original laparotomy, was a hard decision to make and another attempt was made to arouse the peristaltic function of the bowel by intravenous infusions of hypertonic salt solution. The result was truly dazzling. After four injections, peristalsis set in and two days later, under a continuation of two injections of the hypertonic salt solution daily, the bowel was completely collapsed, the drum-like dilatation of the abdomen had disappeared, and the bowel function was normal. The patient went on to a complete and uneventful recovery.

Case 3. This patient was a para II, who, a few days prior to the estimated date for the onset of labor,

began to complain of pain in the lower abdomen. The pain became progressively worse. A physician was summoned. She had an oral temperature of 104.6°. The region of the bladder, left ureter and epigastrium as far as the left kidney was sensitive to pressure. Defense musculature was absent. There was no evidence of labor pains. The movements of the child appeared much more active after the onset of pain. The patient was sent to the hospital with the provisional diagnosis of pyelitis. Examination of the urine disclosed, albumin + + + +, a few red blood corpuscles, many pus cells and epithelial cells. The bacteria found were *B. coli*, staphylococci and streptococci. The blood count showed 26,000 leucocytes of which 89% were polymorphonuclears. As for the rest, there were a few hyaline and granular cylinders. The diagnosis, therefore, was cystopyelitis with involvement of the renal parenchyma.

The evident severity of the infection, the high fever and urinary retention, only 240 c.c. being passed in twenty-four hours, made it appear inadvisable to leave the child exposed longer than the two days to this injurious condition of things. The life of the mother would also be endangered by a continuation of the condition. Since the cervix was closed, cesarean section was the only alternative. An expectant attitude, with irrigations of the renal pelvis in the presence of the complicating involvement of the renal parenchyma, seemed too hazardous. And, then, catheterization of the renal pelvis (in this period of pregnancy) is frequently impossible. Finally, artificial induction of labor with its lengthy period before the child is delivered, would only have rendered the condition worse than it was. As a matter of fact, with a low cervical section a living child was procured, and the mother, under appropriate treatment, has, aside from traces of albumin, entirely recovered.

*Discussion.* Pyelitis gravidarum is not so rare. According to Stoeckel, the patient may recover under conservative treatment if the condition is taken in time. Often, however, the pregnancy must be interrupted. Abortus artificialis, as a rule, brings immediate relief. Statistics show that an interruption of pregnancy is necessary in one to three per cent. of hospital cases. The usual case is one in the fifth to the seventh month of pregnancy. The literature discloses only five cases in which the pyelitis did not appear until the end of pregnancy. In the present case there was an abdominal cesarean section, securing a living child. In this instance, there was no longer a question of "taking the pyelitis in time"; the infection had gone over from the renal pelvis to the renal parenchyma and it was, therefore, no longer a simple pyelitis but a pyelonephritis. The literature reports numerous deaths where the pregnancy has not been interrupted in time. The causes of death in these

instances have been renal abscess, endocarditis, sepsis, anuria and perforative peritonitis. In two cases of W. Stoeckel in which death was due to kidney suppuration, the death occurred only later, during the puerperium.

If one may be permitted to discuss the later histories of women who have undergone an attack of pyelitis gravidarum, it may be noted that temporary improvement may take place, the condition, however, flaring up again at the time of labor. This occurs in about 50 per cent. of cases. The condition may eventuate in a puerperal fever, as in five of fifty-two cases reported by Ahlbeck, it may result in a fatal sepsis. Involvement of the changes induced by pregnancy in the renal pelvis and the ureter is delayed in those patients who have undergone an attack of pyelitis gravidarum. Dilatation of the ureter may persist for a long time and render a further pregnancy inadvisable until the dilatation or kinking of the ureter has been shown roentgenologically to have disappeared. Follow-up studies by Naujoks show that of thirty-seven women, whose pyelitis had developed from two to twenty years previously, thirteen were still uncured. Recurrences developed not only during subsequent pregnancies but also following colds, intestinal disturbances, etc. About half the women who have developed pyelitis retain the condition in a latent form. The experiences recorded in the literature indicate that the prognosis in pyelitis gravidarum is by no means uniformly favorable and, therefore, long-continued observation of the patient, particularly during subsequent pregnancies, is essential.

It is desired to report these cases for the reason, that in the first case the cessation of labor pains and of progress in labor as a result of adhesions would not seem to be a frequent condition. In the second case, the necessity of cesarean section in the seventh month of pregnancy as a result of threatening placental bleeding and in the interest of the life of the child would, no more than in the first case, seem to be a frequent occurrence. In this second case, again, there would seem to be a special interest in the severe postoperative bowel atony and its correction under intravenous infusions of hypertonic salt solution. The third case is one of cesarean section for pyelonephritis gravidarum



gravis with indications for interruption of pregnancy. It is an instance of which only a few have been reported in the literature.

1151 North Shore Avenue.

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### CORONARY ARTERY THROMBOSIS WITH TREATMENT BY PROLONGED REST IN BED AND LOW CALORY DIET; IMPROVED PROGNOSIS

Arthur M. Master, *New York Journal A. M. A.*, Aug. 3, 1935), reports on seventy-five patients in eighty-five attacks of coronary thrombosis treated by immediate complete rest in bed for six weeks and by a regiment of low calory diet. Eight patients died, only one in a first attack. Meticulous attention to detail is essential to the management of a patient in an attack of acute coronary thrombosis. During the initial stage of shock the patient is given very little food. Low calory diets and small meals prevent dangerous gastro-intestinal cardiac reflexes or mechanical disturbances; they also lower the basal metabolic rate and diminish the work of the heart. The heart is given an opportunity to heal and to form collateral circulation. Morphine and codeine were used liberally for severe pain. Glyceryl trinitrate, amyl nitrite, digitalis and epinephrine were considered dangerous. The prognosis for the first attack of coronary artery thrombosis is considered very good. Usually a patient does not die in his first attack. About 70 per cent of the attacks occurred in hypertensive patients. A hypertension is generally present preceding a subsequent attack. It is probable that in women a coronary thrombosis takes place only when hypertension is present. The prognosis is better in cases in which the blood pressure is not high. The prognosis of patients with infarcts on the anterior or posterior surface of the left ventricle is equally good. Multiple attacks of coronary thrombosis are common. A patient who dies within twenty-four hours presumably has had previous attacks of coronary thrombosis and has probably suffered from marked hypertension. If the patient lives through the first twenty-four hours, he will probably survive that particular attack. Congestive failure is usually absent during the first attack of acute coronary thrombosis. Patients returned to their usual routine life or work following 62.5 per cent of the attacks and resumed light to moderate activity in 14 per cent.

### METAPHORICALLY SPEAKING

"Look at this haircut," bawled the prisoner. "I paid seventy-five cents for it. Isn't it lousy?"

## Society Proceedings

### COOK COUNTY

#### CHICAGO MEDICAL SOCIETY

*Wednesday, January 8, 1936*

- A Review of the Physiology of the Pituitary Gland—A. C. Ivy, Professor of Physiology, Northwestern University Medical School.  
Discussion—James H. Hutton.
- Endocrinology and Organotherapy in Gynecology—Emil Novak, Johns Hopkins University School of Medicine, Baltimore, Maryland.  
Discussion—Carey Culbertson, William Saphir, Hugo Rony, A. G. Gabriellianz, Irving Stein.

#### *Joint Meeting of the Central States Society of Industrial Medicine and Surgery with the Chicago Medical Society*

*Wednesday, January 15, 1936*

- The Problem of the Pneumonokonioses in Industry—George G. Davis.
- Traumatic Surgery Trends—John J. Moorhead, New York City.  
Discussion—Harry E. Mock, C. R. G. Forrester.
- The Clinical Aspects of Pulmonary Fibrosis Produced by Dust Diseases—Allan J. Hruby.
- The Pathology of the Pneumonokonioses—Henry C. Sweany.
- Roentgenologic Visualization of Lung Fibrosis Produced by Silicosis and Other Dust Occupations—Hollis Potter.
- The Legal Status of Occupational Diseases in Illinois—Daniel D. Carmell, Asst. Atty. Gen., State of Illinois.
- The Role of the Medical Department of the Illinois State Industrial Commission in Connection with Occupational Disease—Philip H. Kreuscher.

#### *Memorial Meeting—Sunday January 19, 1936*

\*Murphy Memorial Hall, 50 East Erie Street.

Julius H. Hess, President, Presiding.

#### Program

- Processional—W. D. Belknap, Organist.
- Assembly—Dr. Carl F. Steinhoff, Commander Victory "A Beautiful Garden of Prayer"—Imperial Male Quartette.  
Post No. 7, Drum and Bugle Corps, American Legion.
- "In Memoriam"—Dr. Charles B. Reed.
- "Heaven Is My Home"—Imperial Male Quartette.
- Address—Reverend R. A. White, People's Liberal Church.
- "In the Time of Roses"—Imperial Male Quartette.
- Nineteen Thirty-five Necrology of the Chicago Medical Society by Branches (Lantern Slides).
- "Crossing the Bar"—Imperial Male Quartette.
- Taps—Dr. Carl F. Steinhoff, Commander Victory Post No. 7 Drum and Bugle Corps, American Legion.

Recessional—W. D. Belknap, Organist.

\*Courtesy American College of Surgeons.

*Regular Meeting, Wednesday, January 22, 1936*

Auditorium, Medical and Dental Arts Bldg.,  
185 North Wabash Avenue.

Orthopedic Program.

Sciatic Pain—Albert H. Freiberg, Cincinnati, Ohio.

Discussion—Fremont A. Chandler, E. J. Berkheiser.

Faulty Posture and Scoliosis—Philip Lewin.

Discussion—F. W. Hark.

Derangement of the Knee Joint—Edwin W. Ryerson.

Discussion—Daniel H. Levinthal, Beveridge H. Moore.

*Regular Meeting, Wednesday, February 5, 1936*

Syphilis Program

Treatment of Congenital Syphilis—Harold Rosenbaum.

Discussion—Alfred S. Traisman.

Treatment of Early Syphilis—Oliver S. Ormsby.

Discussion—Clark W. Finnerud.

Treatment of Syphilis of the Central Nervous System—George W. Hall.

Discussion—Lewis J. Pollock, Ralph C. Hamill, Francis J. Gerty.

### FIFTH COUNCILOR DISTRICT

On December 11, a joint meeting was held of Mason, Menard, Tazewell and Logan Counties, at Mason City. There were about forty-five men in attendance, with almost the entire membership of these four counties. Other counties having representatives present were Schuyler, Fulton, McDonough, DeWitt and Sangamon. A splendid dinner was served at 6:30 by the ladies of the Presbyterian Church.

Dr. S. E. Munson, Councilor of the Fifth District, was introduced by Dr. H. O. Rogier, representing the Mason County Medical Society, and acted as toastmaster for the evening.

Dr. Charles B. Reed, President of the Illinois State Medical Society, gave an address on "Contract Practice," and Dr. Harold M. Camp, Secretary, gave an address on "Recent Trends in Medical Economics." Dr. Frank J. Jirka, Director of the State Department of Public Health, talked on "The Department of Health and the Social Securities Act." The addresses were warmly received and many questions were answered by the speakers, with interesting discussions by the members present.

This was one of the largest and most enthusiastic meetings held in the north part of the Fifth District for some time.

### GREENE COUNTY

Regular meeting of the Greene County Medical Society held in Roodhouse, December 13, 1935.

After a splendid dinner at Hotel Roodhouse the meeting was called to order by President A. D. Wilson.

The regular order of business was suspended to listen to a paper on "Cancer of the Rectum," by Dr. W. T. Stickley. The Doctor gave us a very interest-

ing and instructive paper showing us specimens and microscopic slides from some of his cases together with case histories.

The paper was freely discussed in an informal manner and was thoroughly enjoyed by us all.

After the close of the discussion the business session was resumed. Minutes of the previous meeting were read and approved. Some correspondence was disposed of and a letter of greeting from Dr. W. H. Smith was read and enjoyed by us all. The Secretary was instructed to send greetings from the Society to Dr. Smith. His letter was made a part of the records of this meeting.

The secretary was instructed to draft resolutions of respect for our late Dr. A. R. Jarman and forward same to the family. A copy of these resolutions form a part of the record of this meeting.

Report of the Secretary-Treasurer was read and approved.

Election of officers followed and resulted as follows: President—Dr. A. K. Baldwin of Carrollton.

Vice-President—Dr. F. N. McLaren of White Hall.

Secretary-Treasurer—Dr. W. H. Garrison of White Hall.

Dr. E. E. Jouett of Carrollton was elected Censor for 2 years.

Dr. O. J. Gause of Greenfield was elected Censor for 3 years.

The application of Dr. C. A. Billings of Hillview and Dr. E. W. Thomas of Roodhouse were received and referred to board of Censors.

Meeting adjourned at 10:30 P. M.

Wm. H. Garrison, Secretary.

### KANKAKEE COUNTY

The Kankakee County Medical Society at its regular meeting of December 12, 1935, elected the following officers for the year 1936: president, J. H. Gamet; vice-president, J. L. Cass; secretary-treasurer, C. A. Perrodin; state delegate, S. W. Lane; alternate state delegate, C. W. Geiger; censor, J. A. Guertin.

Dr. L. W. Hunt of the University of Chicago, Department of Medicine, addressed the Kankakee County Medical Society, January 9th, on "Scarlet Fever Immunization and Treatment."

C. A. Perrodin, Secretary.

### Marriages

WILLIAM A. BORIN, Bartonville, Ill., to Miss Lulu Margaret Dustey of Peoria, Nov. 21, 1935.

AARON SAMUEL LEVEN to Miss Leah Rose, both of Chicago, Nov. 30, 1935.

JOHN F. PICK to Mme. Marguerite Grassino Farre, both of Chicago, in December, 1935.

MYRTLE FORENCE SWEIMLER, Watseka, Ill., to Mr. Louis V. Jackson of Champaign recently.



## Personals

Dr. Joseph K. Narat demonstrated "Multi-colored Corrosion Specimens" before the Chicago Urological Society, January 23, 1936.

Dr. Ralph H. Kuhns, instructor in Neuropsychiatry at the University of Illinois College of Medicine, has been scheduled to address various groups this winter on Psychiatric subjects under the auspices of the Educational Committee of the Illinois State Medical Society.

The Society of Illinois Bacteriologists met January 17 at Chicago Woman's Club.

Dr. Louis Rudolph has been appointed associate professor of obstetrics at Loyola University School of Medicine.

Dr. Isaac A. Abt addressed the Chicago Heart Association, January 7, on "Heart Disease in Early Life."

Dr. Arthur E. Hertzler, Halstead, Kan., discussed "Benign Diseases of the Stomach" before the Peoria City Medical Society, January 7.

Dr. Robert A. Black has been appointed a member of the board of health, succeeding Edwin O. Jordan, Ph.D., who resigned because of ill health.

Dr. Harold C. Voris, Chicago, discussed "Surgery of the Sympathetic Nervous System" before the Fulton County Medical Society in Canton, December 18.

Dr. Edgar A. Thacker has been named medical adviser and instructor in hygiene of the health service of the University of Illinois, Urbana.

Dr. Eugene F. Traut, Chicago, discussed "Etiology and Treatment of Arthritis" before the DuPage County Medical Society in Elmhurst, December 18.

Dr. Francis Park Lewis, Buffalo, discussed "The Evolution of Ophthalmology in the Past Century" at a meeting of the Chicago Ophthalmological Society, January 20.

Dr. William H. Walsh has been appointed as a special consultant to study the hospital needs in connection with the Institute of Tropical Medicine in San Juan, Puerto Rico.

Among others, Dr. Phillips Thygeson, Iowa City, addressed the Chicago Ophthalmological

Society, December 16, on "Etiology of Trachoma and Inclusion Blepharitis."

Dr. Otto H. Schwarz, St. Louis, addressed a joint meeting of the Englewood and Stock Yards branches of the Chicago Medical Society, December 3, on "Metabolism of Pregnancy."

Dr. Claude S. Beck, Cleveland, discussed "Establishment of a New Blood Supply to the Heart by Operation" and "Acute and Chronic Compression of the Heart" before the Chicago Medical Society, December 4.

Dr. Anderson C. Hilding, Duluth, Minn., discussed "Physiology of the Nose and Sinuses" before the Chicago Laryngological and Otolological Society, January 6, and Dr. George S. Livingston, "Smoke Asphyxia."

Dr. Archibald L. Hoyne, Chicago, discussed "Newer Methods of Prophylaxis and Treatment in Contagious Diseases" before the Winnebago County Medical Society in Rockford, December 20.

Speakers before the Chicago Surgical Society, December 13, included Dr. Arthur Dean Bevan, on present status of appendicitis and Dr. Frederick Christopher, Evanston, perforated ulcer of Meekel's diverticulum.

The Chicago Surgical Society was addressed, January 3, among others, by Drs. Henry N. Harkins and Paul H. Harmon on "Surgical Shock as a Lethal Factor in Bile Peritonitis."

Dr. Frederick C. Irving, Boston, discussed "Three Hundred and Eight Cases of Placenta Praevia at the Boston Lying-In Hospital" before the Chicago Gynecological Society, December 20.

Dr. Maurice J. Rubel was awarded the Cross of the Legion of Honor, in recognition of his service to the French people, December 15; M. René Weiller, French consul, made the presentation.

The Chicago Pathological Society was addressed among others, December 9, by Drs. James P. Simonds on "Chronic Thrombosis of the Portal Vein," and Nathan S. Davis III, "Atherosclerosis and Resulting Pathology in 1,000 Consecutive Necropsies."

At a meeting of the Chicago Orthopaedic Society, December 6, speakers were Drs. Marcus H. Hobart, Evanston, Ill., on "Manipulative Treat-

ment of Coccygodynia," and Frederick C. Kidner, Detroit "Cavernous Angioma of the Lower Extremity."

At a meeting of the Rock River Valley Eye, Ear, Nose and Throat Society at Rockford, December 17, Dr. Robert Sonnenschein, Chicago, talked on "Functional Hearing Tests and Their Bearing on the Diagnosis and Treatment of Nonsuppurative Middle Ear Disease."

The Chicago Society of Allergy was addressed, January 20, by A. G. Wedum, Ph.D., on "Specificity of Immunological Reactions as Illustrated by Studies of Chemoproteins," and Dr. Michael Zeller, "Leukopenic Index in Allergic Individuals."

Dr. Emil Novak, associate in gynecology, Johns Hopkins University School of Medicine, Baltimore, delivered the annual Bacon lectures at the University of Illinois College of Medicine, January 8-9.

At a meeting of the Chicago Gynecological Society, January 17, speakers included Drs. William J. Dieckmann and Howard J. Holloway on "Acute Nephritis and Pregnancy" and "Cervicitis and Endocervicitis in Relation to Gynecologic Symptomatology," respectively.

Dr. Harry A. Paskind presented a paper before the Society of Medical History of Chicago, January 17, entitled "Sir Charles Bell: A Biographical Sketch," and Dr. Clarence A. Earle, one on "Dr. John Zahn, Pioneer German-American Physician."

At a meeting of the Sangamon County Medical Society in Springfield, January 2, Dr. Herbert B. Henkel discussed "Symptoms and Diagnosis of Common Urologic Conditions"; Emmet F. Pearson, "Minor and Borderline Manifestations of Allergy," and Herman H. Tuttle, present-day health problems.

Speakers before the Chicago Pediatric Society, January 21, were Drs. Abraham B. Schwartz, Milwaukee, "Rational Treatment for Abnormally Attached Frenum Labium"; William H. G. Logan, "Indications for Surgical Treatment of Cleft Palate and Cleft Lip," and Thomas L. Grisamore, D.D.S., "Primary and Major Indications for Orthodontia."

Dr. Jacob P. Greenhill, recently appointed head of the department of obstetrics of the American Hospital, has resigned because of the pressure of other duties. Dr. Greenhill was re-

cently promoted to professor of gynecology at Loyola University School of Medicine.

Dr. Peter Bassoe was chosen president of the Institute of Medicine of Chicago at the recent annual meeting. Harold F. McCormick and Albert A. Sprague were elected to citizen fellowship, an honor conferred on laymen who have contributed materially to the welfare of the community in medicine, dentistry, nursing, public health, social service or instruction.

Dr. Walter C. Alvarez, Rochester, Minn., discussed devices that aid in diagnosis and treatment of gastro-intestinal disease before the Chicago Medical Society, December 11, and Dr. Clayton J. Lundy, "The Heart Beat Mechanism in Health and Disease" and "Uses and Abuses of the Electrocardiogram in Diagnosis of Heart Disease." At a meeting, January 8, Dr. Emil Novak, Baltimore discussed "Endocrinology and Organotherapy in Gynecology," and Dr. Andrew C. Ivy, "A Review of the Physiology of the Pituitary Gland."

Dr. Daniel H. Levinthal will talk to the Bureau County Medical Society, February 4, 1936, at Spring Valley, Ill., on "The Treatment of Poliomyelitis in the Convalescent Stage," and will show a moving picture on "Reconstruction Surgery for Residual Paralysis Following Poliomyelitis."

The Medical Round Table of Chicago elected the following officers for 1936: President, W. A. Newman Dorland; Secretary, Maximilian Kern.

Dr. Alex A. Hershfield addressed the Brainerd Woman's Club on January 21, subject "Problem Parents." This is the first of a series of programs on mental hygiene which the club is sponsoring.

Dr. Max Thorek has been invited to be guest speaker at the Tacoma Surgical Club, Tacoma, Washington, at their ninth annual meeting in April.

Dr. Carolyn MacDonald addressed the Woman's Club of Kankakee, subject "Through the Cycles of Life," January 22.

Dr. Elmer W. Hagens addressed Will-Grundy County Medical Society at Joliet, January 22.

Dr. William L. Beecher addressed the DeKalb County Medical Society on January 23, on "Allergy."

Dr. M. Herbert Barker gave a talk on "Pneu-



monia" before the Whiteside County Medical Society, January 23.

Dr. Charles M. McKenna addressed the Calhoun County Medical Society at Battle Creek, Michigan, January 14.

### News Notes

—The second Board meeting of the Woman's Auxiliary to the Illinois State Medical Society was held, January 25, 1936, at the Palmer House, Chicago. The President of the Woman's Auxiliary to the American Medical Association, Mrs. Rogers N. Herbert of Nashville, Tennessee, was the guest speaker. Mrs. W. D. Chapman, State President, presided.

—The Illinois State Department of Health announces that Health Promotion Week will be observed April 26-May 1.

—According to a report from the state health department, December 18, scarlet fever was responsible for 1,500 Christmas Day quarantines throughout Illinois.

—The program committee of the Chicago Medical Society has designated the evening of April 1, "doctors' recreation night." Physicians are urged to submit samples of their hobbies for an exhibit.

—Dr. John F. Fulton, Sterling professor of physiology, Yale University School of Medicine, New Haven, will deliver the twelfth Ludvig Hektoen Lecture of the Frank Billings Foundation, January 24. His address will be entitled "Somatic and Automatic Functions of the Frontal Lobes."

—The North Shore branch of the Chicago Medical Society offered a reward January 10, for the capture and conviction of the person or persons who murdered Dr. Silber C. Peacock, January 2. Dr. Peacock was lured from his home by a telephone call to visit a sick child.

—With several cases of smallpox under quarantine, health officials of Maywood, Melrose Park, Bellwood and Forest Park are cooperating in an immunization campaign. Sixteen cases were reported in Maywood, January 9, sixteen in Bellwood and three each in Forest Park and Melrose Park. While schools are not to be closed, health officials are advising the exclusion of unvaccinated children from school for

sixteen days. Some factories in Maywood have arranged for vaccination of their employees.

—Contracts have been let for new Medical and Dental research Laboratories of the University of Illinois College of Medicine, which will be erected with funds provided in a federal grant of \$1,220,000, 30 per cent of which is a gift and 70 per cent of which is a loan to be repaid in annual installments. The structure will be nine stories high, with a tower 57 feet square rising fifteen stories. The architecture will be Gothic with brick exterior. The new unit will contain the departments of public health, bacteriology and pathology of the college of medicine and will provide additional research space for other departments. The college of dentistry also will be in the new building.

—Roger Adams, Ph.D., professor and head of the department of chemistry, University of Illinois, Urbana, has been awarded the Willard Gibbs Medal of the Chicago section of the American Chemical Society for 1936, for "outstanding and fundamental contributions to synthetic organic chemistry, and for conspicuous achievements as a teacher of chemistry." Among other things, Dr. Adams has synthesized chaulmoogric acid, the active principle of the oil used in the treatment of leprosy, and butyn, a local anesthetic. Dr. Adams, now 46 years of age, graduated from Harvard University in 1909, and received the degree of doctor of philosophy from his alma mater in 1912. He began teaching at Illinois in 1916, becoming professor of organic chemistry in 1919 and head of the department in 1926. In 1935, he was president of the American Chemical Society, and received the William H. Nichols Medal in 1927.

—The mortality rate from typhoid, measles, whooping cough and malaria was twice as great among the rural as among the urban population of Illinois in 1934, according to the state department of public health. These diseases gave an aggregate death rate of 14.6 for rural and 7.1 for urban population. The death rate among rural citizens for scarlet fever, diphtheria, tuberculosis and infantile diarrhea ranged from 25 to 40 per cent higher than among the city population, giving an aggregate mortality rate of 84.9 per hundred thousand for the rural population and 60.6 for urban population. Pneumonia, according to the study, was the only

infectious disease which caused a higher mortality rate among those in urban than among those in rural districts, giving a death rate, respectively of 72.8 and 65.5 per hundred thousand of population.

## Deaths

WALTER GELVIN BAIN, Springfield, Ill.; Northwestern University Medical School, Chicago, 1905; a Fellow A. M. A.; past president of the Sangamon County Medical Society; member of the Society of American Bacteriologists, American Society of Clinical Pathologists and the Radiological Society of North America; past president of the Illinois State Academy of Science; was bacteriologist in charge of the laboratory of the Illinois Board of Health, 1908-1909; served during the World War; aged 59; director of the school for laboratory technicians, medical superintendent, pathologist and radiologist to St. John's Hospital, where he died, Dec. 25, 1935, of cholelithiasis and acute pancreatitis.

WILLIAM JOSEPH BUTLER, Chicago; Rush Medical College, Chicago, 1894; a Fellow A. M. A.; formerly attending physician to the Frances E. Willard Hospital and consulting physician to the Hospital of St. Anthony de Padua; aged 63; died, Nov. 7, 1935, in Gainesville, Fla., of cerebral hemorrhage.

NATHAN PORTER COLWELL, for many years Secretary of the Council on Medical Education and Hospitals of the American Medical Association, died of cerebral hemorrhage at his home in Wilmette, Ill., January 6, aged 65 years. Dr. Colwell was born in Osceola, Iowa, May 25, 1870, and received his medical degree from Rush Medical College in 1900; a Fellow A. M. A. He became associate instructor in otology at his alma mater and served at the same time as assistant dean in Rush Medical College.

In 1901 *The Journal, A.M.A.*, published its first Educational Number, which included a survey of American medical colleges, and in 1903 its first annual State Board Number. Apparently as a result of these surveys the House of Delegates of the Association was stimulated to the formation of the Council on Medical Education in 1905, and Nathan P. Colwell became its first secretary in 1906. From that time he made numerous contributions to the subject of medical education. As secretary of the Council he bore a large share of the responsibility for direct investigation and report on medical schools, for aiding the trend of discussions at the annual conferences on medical education, and for setting forth clearly the facts in relationship to medical education in the United States. He was also instrumental in organizing the Federation of State Medical Boards of the United States and drew up its first constitution, which was adopted in 1912. He aided in establishing the monthly bulletin of the federation and served as its managing editor until the time of his retirement as secretary of the Council on Medical Education and Hospitals in 1931. Each of the annual reports on medical education and on hospitals published by the Council on Medical Education and Hospitals during his tenure

of office was drawn up under his personal supervision. Moreover, from 1904 to 1915 he compiled the statistics of deaths associated with Fourth of July accidents and did much in the campaign to lower this morbidity and mortality.

From 1913 to 1930 he was a collaborator of the United States Bureau of Education. During the World War his knowledge of medical education was put at the disposal of the United States Army and he served as contract surgeon in the office of the Surgeon General. He was a member of the Institute of Medicine of Chicago and of Alpha Omega Alpha.

During the twenty-five years of his work with the American Medical Association he rendered devoted service at a great sacrifice of his health and leisure. In 1931 he was retired and since that time had been living at home, concerning himself partially with the preparation of a history of medical education. He was an earnest and conscientious worker; devoted to the single purpose of raising standards in medical and hospital care. His temperament was judicial and his mind analytical. To him must be assigned a large portion of the credit for the persistent and steady advances made in medical education in this country during the past quarter century.

MATILDA EATON, Cambridge, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1896; a Fellow A. M. A.; aged 72; died, Nov. 27, 1935, of mitral insufficiency.

JOSEPH HALL, Westfield, Ill.; Medical College of Indiana, Indianapolis, 1894; member of the Illinois State Medical Society; aged 86; died, Nov. 12, 1935, of heart disease.

ROBERT WILLIAM HOCKMAN, Addis Ababa, Abyssinia, Africa; Northwestern University Medical School, Chicago, 1933; United Presbyterian missionary; formerly of Wheaton, Ill.; aged 29, was killed Dec. 13, 1935, while handling a bomb which exploded.

WILL CARLTON NORTH, Rockford, Ill.; State University of Iowa College of Medicine, Iowa City, 1928; aged 38; died, Oct. 21, 1935, of angina pectoris.

ORSON BAILEY SPENCER, Kankakee, Ill.; Western Homeopathic College, Cleveland, 1868; member of the Illinois State Medical Society; aged 90; died, Dec. 3, 1935, of cerebral hemorrhage.

FREDERICK ROBERT ZEIT, Chicago; Western Reserve University Medical Department, Cleveland, 1887; assistant in pathology and bacteriology in 1900, professor of bacteriology and clinical pathology in 1901 and 1902, from 1903 to 1913 professor of pathology and bacteriology and since 1913 professor of pathology, Northwestern University Medical School; founder of the Frederick Robert Zeit Museum of Pathology, Northwestern University; professor of pathology and bacteriology, Post-Graduate Medical School of Chicago, 1900-1919; collaborator and first assistant of Prof. Edwin Klebs, 1897-1900; member of the American Association of Pathologists and Bacteriologists; president of the Chicago Pathological Society, 1904-1905; consulting pathologist to the Wesley and Grant hospitals; aged 71; died, Dec. 5, 1935, in Coronado, Calif.



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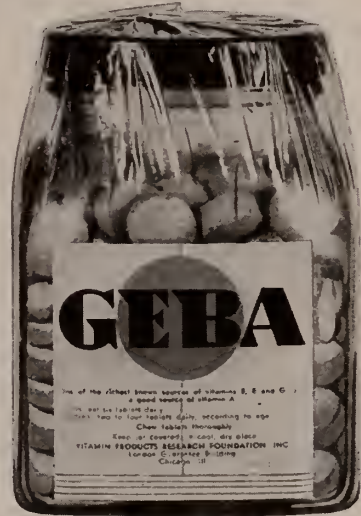
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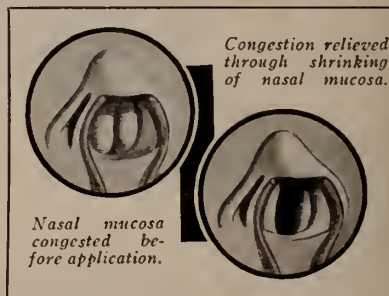
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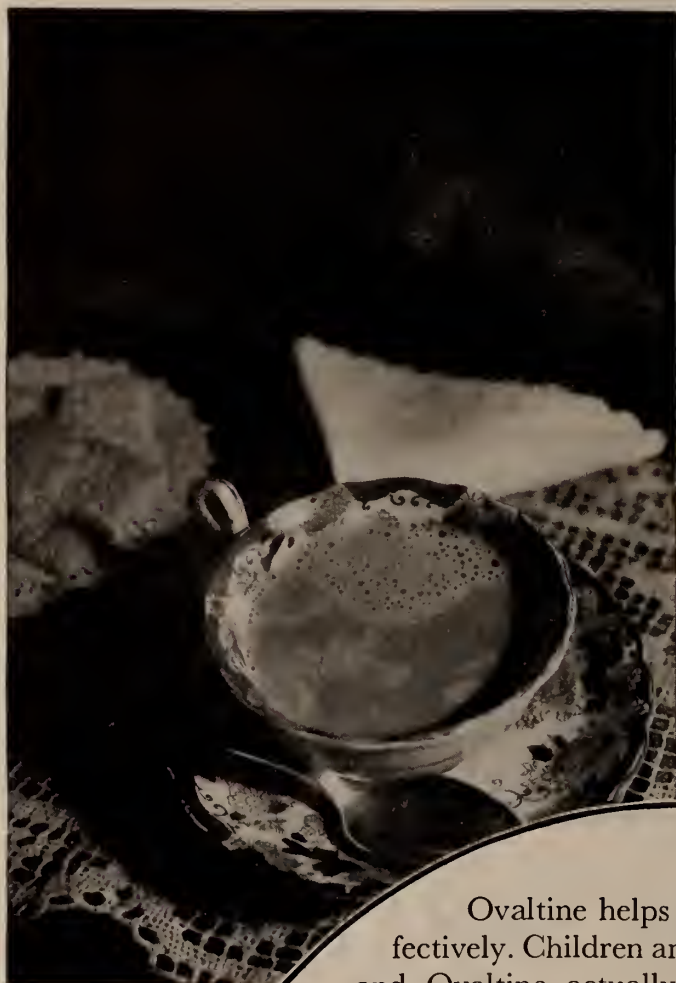
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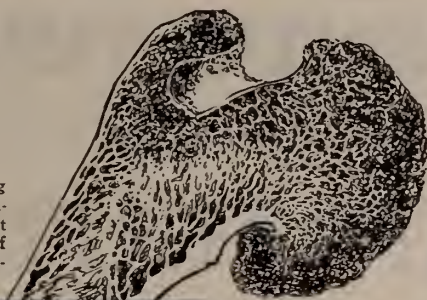
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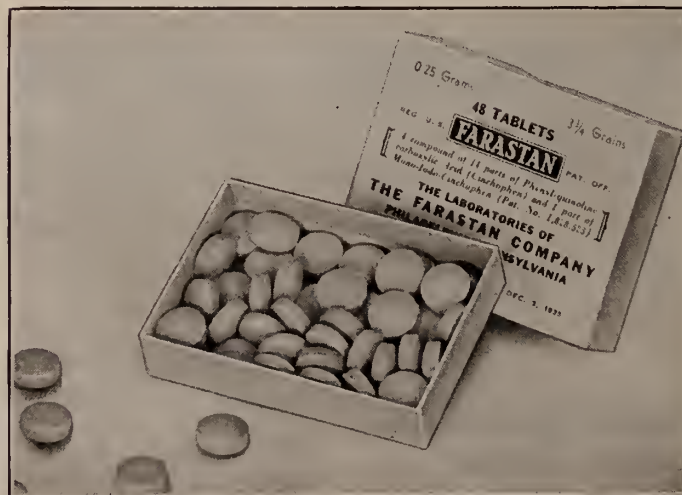
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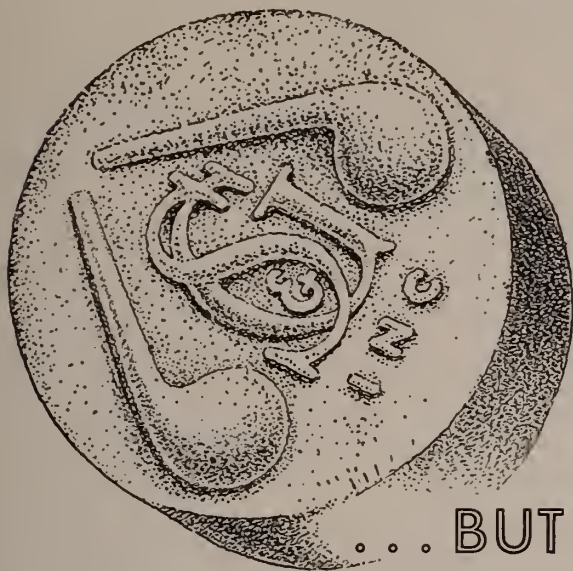
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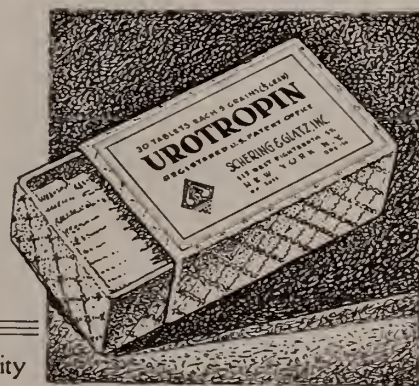
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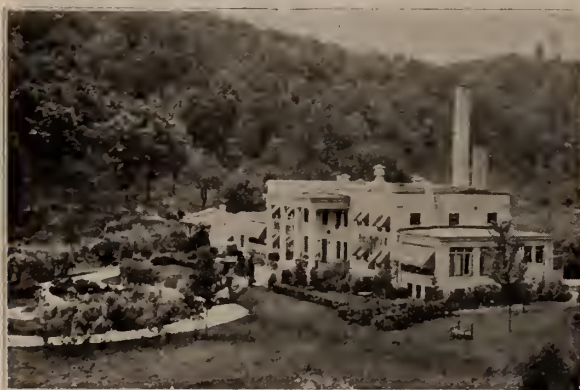
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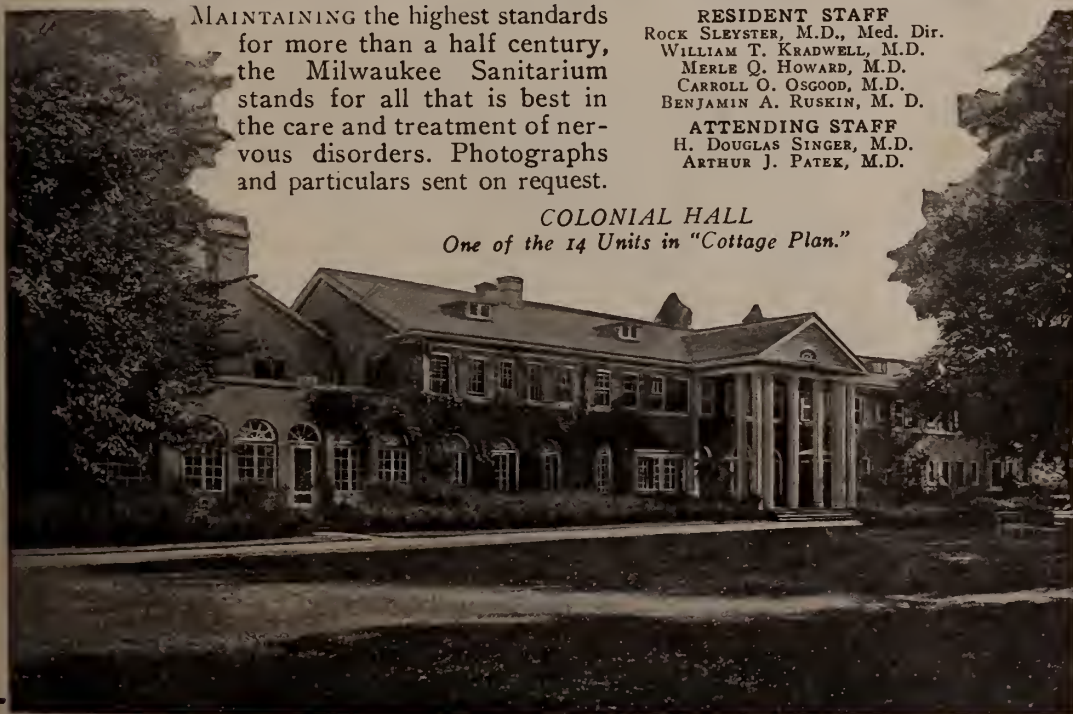
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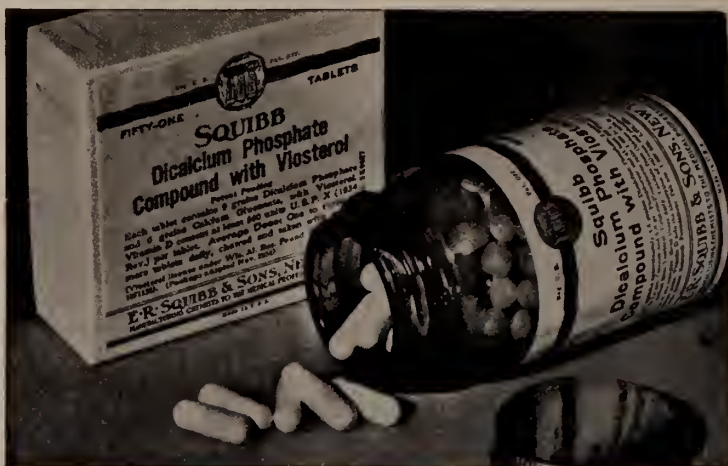
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## REFERENCES:

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McLean & Fales, Scientific Feeding in Infancy, (Lea & Febiger).

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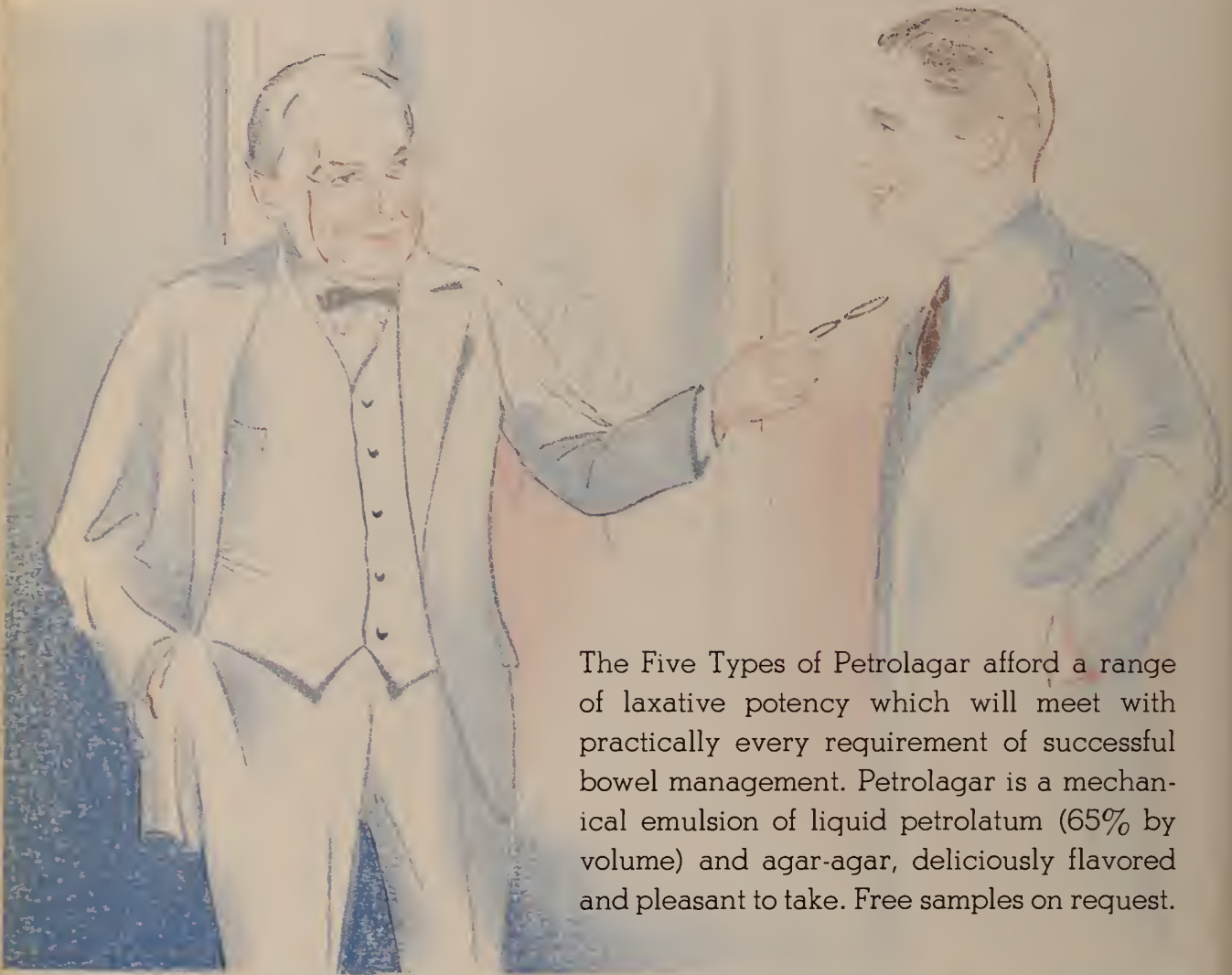
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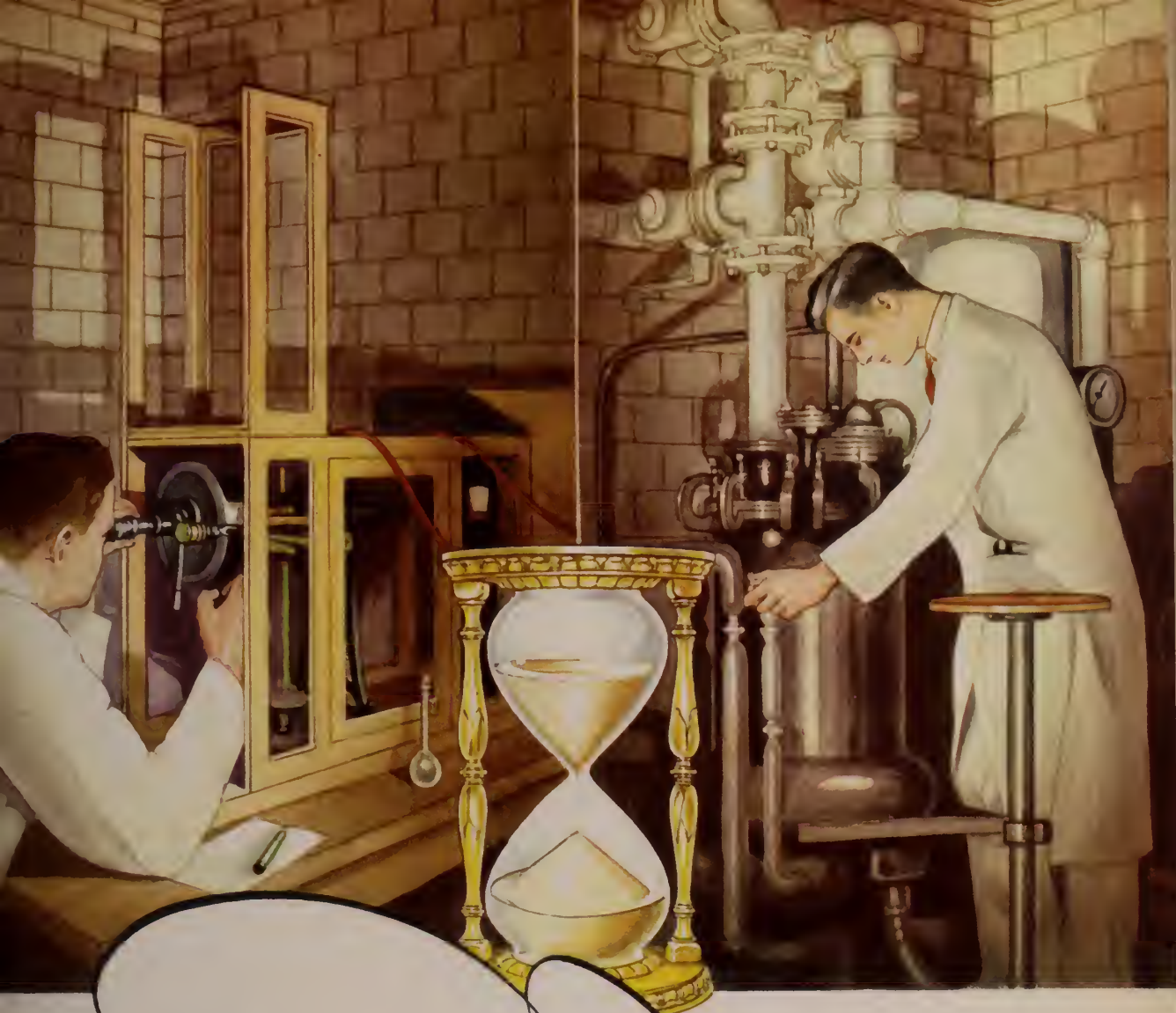
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The study was then directed to other species. By 1927 we had quantitatively compared the antiricketic value of oils from 15 species of fish and 11 other oils and fats. This was the most extensive survey of vitamin D sources reported up to that time. Outstanding in this list was puffer fish liver oil with a vitamin potency 15 times that of cod liver oil. Puffer fish were not available in commercial amounts, but the fact that one species of fish yielded so high a vitamin store provided great stimulus to investigators.

We discovered that the potency of fish liver oils increases with the leanness of the livers. With this revelation, we began a survey of all available commercial fish, as well as of rarer species. Collectors were sent to distant continents and to the islands of the Pacific and Atlantic oceans. From ports which never before knew cold storage we arranged to obtain refrigerated livers for our experiments. This ichthyological survey was interrupted (1928) at the time we introduced activated ergosterol.

In 1929 the Norwegian investigator, Schmidt-Nielsen, reported halibut liver oil to be superior to cod in vitamin A. Upon investigating, we felt then, as we do now, that while halibut liver oil

marked a distinct advance it left much to be desired since it was perforce an expensive source of vitamin D. Hence it came to be used chiefly to supply vitamin A as a vehicle for viosterol.

Continuing the search for fish liver oils, by 1934 our laboratory staff had made thousands of bioassays of oils from more than 100 species to determine their vitamin characteristics. The results, reported in scientific journals in January and April 1935, were the culmination of a search literally of the seven seas.

With cumulative data on more than 100 species, it became evident that the fish belonging to the order known as *Percomorphi* differ from others in possessing, almost without exception, phenomenal concentrations of vitamins A and D. Thus we find liver oils which contain 50, 100, 500, and even 1,000 times as much vitamin A or vitamin D as average cod liver oil!

Percomorph liver oils are seldom equally rich in both vitamins. By skilful blending of the A-rich oils with the D-rich oils, a mixture is obtained which is about 200 times richer than cod liver oil in both vitamins A and D. As this concentration is so great that an ordinary dose of the oil could not be conveniently measured, we dilute the percomorph oil with approximately one volume of refined cod liver oil.

The resultant product is Mead's Oleum Percomorphum, 50%, which is 100 times cod liver oil\* in both vitamins A and D. By a further dilution we obtain Mead's Cod Liver Oil Fortified With Percomorph Liver Oil, 10 times as potent as cod liver oil\* in both vitamins A and D. Their respective potencies are 60,000 vitamin A units, 8,500 vitamin D units; and 6,000 vitamin A units, 850 vitamin D units (U.S.P.) per gram.

Just as Oleum Morrhuae is a mixture of the liver oils of various cod species (cf. U.S.P. XI, 1935, p. 261) so Mead's Oleum Percomorphum is a mixture of the liver oils of various percomorph species.\*\* The significant difference is that the improved product is 100 times as potent\* in both vitamins A and D.

Mead's Oleum Percomorphum, 50%, is available in 10-drop capsules, 25 in a box; and in 10 cc. and 50 cc. bottles. Mead's Cod Liver Oil Fortified With Percomorph Liver Oil is available in 3 oz. and 16 oz. bottles.

\*U.S.P. XI Minimum Standard.

\*\*Principally *Xiphias gladius*, *Pneumatophorus diego*, *Thunnus thynnus*, *Stereolepis gigas*, and closely allied species.

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ment produced commercially in the United States based on the original formula and published in the medical literature. In proof of this we offer to interested physicians medical reprints from the Journal of the A. M. A., March 4, 1933, Vol. 100, pp. 645-647.

DANISH OINTMENT has been so widely imitated and the imitations have caused so much trouble with skin rash, itching and burning, without effectively curing the Scabies itself, that The Tilden Company has found it necessary to issue the following notice:

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The Tilden Company has just issued a Warning in the Drug Trade News which circulates to manufacturers, wholesalers and retailers that any infringement of their Trade Mark DANISH OINTMENT will be prosecuted.

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(Oleum Triticum Vulgare—Wheat Germ Oil)

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Vitamin E Richness as Established by Certified Bioassay!**

OLCOTT and Mattill (1) recently admonished biochemical workers that all samples of wheat germ oil are not equally rich in vitamin E; some may lack it entirely. Experiments and clinical trials with vitamin E without adequate biological assays are worthless.

Drummond, Singer and Macwalter (2) point out that even laboratory extraction of wheat germ oil with ether may (*and frequently does*) cause inactivation. Cold pressing, while expensive, produces an active oil; but only a certified bioassay can insure the absolute presence of vitamin E.

Adamstone and Card (3) point out that the results of a dietary deficiency of vitamin E have been amply demonstrated for the mammal by numerous investigators, and that in the male, there is produced a *permanent incurable type of sterility involving actual destruction of the germinal elements of the testis*. The mammalian male imperatively requires vitamin E to prevent *irreparable* destruction of spermatogenic structures.

"Evans (4) and also Mason (5) (6) (7) (8) have shown that a complete disintegration of the germinal elements takes place in which the germ cells and also the germinal epithelium are eventually destroyed. Kudrjaschov (9) confirmed these findings and also demonstrated that, although the male secondary sexual characteristics undergo regression at the same time that the germinal elements disintegrate, the interstitial cells apparently remain normal. He has thus shown the probability that the male sex hormone has its source in some of the developing germinal elements rather than in the interstitial cells of Leydig as is commonly believed. More recently,

Mason (10) has found that the type of germ cell destruction produced by vitamin E deficiency is quite characteristic and readily distinguishable from that occurring as the result of inanition of a dietary deficiency in vitamin A."

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and vitamin D is to Rickets,  
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Vitamin E is to reproduction.

1. Jour. of Biological Chemistry, Vol. 104, No. 2, Feb., 1934.
2. Biochemical Journ., Vol. xxix, No. 2, Feb., 1935.
3. Journ. of Morphology., Vol. 56, No. 2, Sept., 1934.
4. Memoirs Univ. Calif., Vol. 8, 1927.
5. Proc. Nat. Acad. Sci., Vol. 2, p. 377, 1925.
6. J. Exp. Zool., Vol. 45, p. 159, 1926.
7. J. Nutrition, Vol. 1, p. 311, 1929.
8. Am. J. Anat., Vol. 52, p. 153, 1933.
9. Endokrinologie, Bd. 7, S. 91, 1930.
10. Am. J. Anat., Vol. 52, p. 153, 1933.

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## Book Reviews

A TEXT-BOOK OF ROENTGENOLOGY. By Bede J. Michael Harrison, M. B. Baltimore. William Wood & Company. 1936. Price \$10.00.

This is a comprehensive New Work for Physicians, Surgeons, Radiologists and students. It provides in one concise volume a sufficient basic knowledge of roentgenology to make clear just what are the possibilities and advantages of the use of X-rays in diagnosis and in treatment.

DELAFIELD AND PRUDDEN'S TEXT-BOOK OF PATHOLOGY. Revised by Francis Carter Wood, M. D. Sixteenth edition with twenty-two full-page plates and eight hundred and thirty-nine illustrations in the text in black and colors. Baltimore. William Wood & Company. 1936. Price \$10.00.

The fact that this work has gone through sixteen editions speaks volumes in its favor.

Many changes have been made from the previous edition and the work has been brought strictly up to date. In this edition the most extensive changes will be found in the chapter on the nervous system. Certain other chapters have been more or less revised, especially those on the muscles, bones and joints.

AIDS TO MEDICINE. By James L. Livingston, M. D. Fifth edition. Baltimore. William Wood and Company. 1935. Price \$1.50.

This work is intended to supply the students with a book of pocket size. Very little change has been made in the arrangement, but the whole book has again been brought up to date.

THE ART OF MINISTERING TO THE SICK. By Richard C. Cabot, M. D., and Russell L. Dicks, B. D. New York. The Macmillan Company. 1936. Price \$3.00.

It is the authors' intention that this book will serve as an inspiration to both the medical profession and the clergy, whose joint understanding and skill are so necessary in times of illness and suffering.

DOCTOR OF THE NORTH COUNTRY. By Earl Vinton McComb, M. D., with a preface by Logan Clendenning, M. D. New York. Thomas Y. Crowell Company. 1936. Price \$2.00.

THE PHARMACOPŒIA OF THE UNITED STATES OF AMERICA. Eleventh Decennial Revision. Prepared by the Committee of Revision and published by the Board of Trustees. Official from June 1, 1936. Easton, Pa. Mack Printing Company.

In presenting this Revision of the Pharmacopœia to the Country the Committee does so with the confident belief that its scope and standards conform to the objective established by the 1930 Pharmacopœial Convention and that it fulfils the present-day needs in its field for both Medicine and Pharmacy.

It is interesting to note that the U. S. P. XI contains 568 titles of which about 430 have approved therapeutic usefulness, although many have similarity in action, such as the various quinine salts, the iodides, the

bromides, the barbiturates, etc. The remainder are pharmaceutical necessities, including many crude drugs not administered themselves but employed to make dosage forms of medication. These must necessarily be standardized.

In the list of admissions will be found 131 pharmaceutical formulas, approximately 30 per cent of the list of therapeutic agents. Most of these formulas can be prepared in the retail pharmacy. Among these are cerates, waters, elixirs, extracts, fluidextracts, ointments, solutions, masses, compound powders, spirits, suppositories, syrups, tinctures and ointments.

Turn to the new Pharmacopœia, pages lxxviii to lxxx, and note the changes in titles. The new spelling of sulfate, sulfur, etc., conforming to modern usage, may seem strange at first, but it did not take the members of the Committee long to accustom themselves to it. Most of the changes seem logical, such as the adoption, finally, by the U. S. P., of the universally used "Saccharin," the use of "Posterior Pituitary" in place of "Pituitary," necessitated by the use today of the whole gland and of the anterior lobe.

The general plan of revision is well known by most pharmacists and physicians and was not changed materially in this revision. The development of two advisory Boards, dealing with the standards for vitamins and for Anti-anemia Products are valuable new features. The Vitamin Board, having among its members Dr. Mendel of Yale University, Dr. Sherman of Columbia University and Dr. E. M. Nelson, Director of the Vitamin Laboratory of the Government, has rendered an important service. The Vitamin A and D standards, developed by this Board, and announced officially by "Interim Revision," have already become universally adopted in this country, and the "U. S. P. Reference Cod Liver Oil," of known vitamin potency, is being distributed throughout the world through the cooperation of the Vitamin Committee of the Health Organization of the League of Nations. The Vitamin Board is now conducting a series of studies of Vitamin B<sub>1</sub> Assay methods in which 26 laboratories in this country and abroad are participating.

The U. S. P. XI has adopted a number of International Standards, such as those for Vitamins A and D and for digitalis and those approved by the last Brussels Conference. Throughout the revision the Committee has maintained a most friendly cooperation with the British Pharmacopœial Commission in an effort to harmonize the titles and standards of these two Pharmacopœias.

The following articles have been added to the Pharmacopœia:

Acriflavina.  
Acriflavinae Hydrochloridum.  
Aethylenum.  
Aethylhydrocupreinae Hydrochloridum.  
Aethylis Oxidum (Solvent Ether).  
Antitoxinum Scarlatinae Streptococcicum.  
Bismuthi et Potassii Tartras.  
Calcii Creosotas.  
Calcii Gluconas.

(Continued on Page 14)



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## Book Reviews

(Continued from Page 12)

Calcii Hydroxidum.  
Carbo Activatus.  
Carbonei Dioxidum.  
Chlorobutanol.  
Digitalis Pulverata (Biologically standardized).  
Emulsum Petrolati Liquidi (50 per cent).  
Ephedrina.  
Ephedrinae Hydrochloridum.  
Ephedrinae Sulfas.  
Erythrilylis Tetranitras Dilutus (Erythrol Tetranitrate).  
Extractum Hepatis.  
Ferri et Ammonii Citrates Virides.  
Fluoresceinum Solubile.  
Histaminae Phosphas.  
Hydrargyri Succinimidum.  
Iodophthaleinum Solubile.  
Liquor Ergosterolis Irradiati (Viosterol).  
Liquor Hepatis.  
Liquor Hepatis Purificatus.  
Liquor Histaminae Phosphatis.  
Liquor Parathyroidei.  
Liquor Sodii Hypochloritis (4 per cent).  
Merbaphenum.  
Neocinchophenum.  
Oleum Iodatum.  
Oleum Maydis.  
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Serum Antipneumococcicum—I.  
Sodii Perboras.  
Sodii Stearas.  
Stomachus.  
Tabellae Glycerylis Trinitratis.  
Theophyllina cum Ethylenediamina.  
Theophyllina cum Sodii Acetate.  
Tincture Iodi Mitis (2 per cent).  
Toxinum Diphthericum Detoxicatum.  
Toxinum Diphthericum Diagnosticum.  
Toxinum Scarlatinae Streptococcicum.  
Toxitabellae Hydrargyri Bichloridi Parvae.  
Tryparsamidum.  
Tuberculinum Pristinum.  
Vaccinum Rabies.  
Vaccinum Typhosum.  
Vaccinum Typho-paratyphosum.

### PERNICIOUS ANEMIA DUE TO VITAMIN DEFICIENCY.

Dr. Charles S. Keefer in the Rhode Island Medical Journal, November, 1935, in speaking of some clinical aspects of deficiency diseases in adults says:

It is now generally recognized that pernicious anemia is a deficiency disorder which develops in most instances as a result of deficient gastric function (Castle). Related macrocytic anemias such as are seen in some cases of sprue and pregnancy also result from a

deficient gastric function or from a lack of hemoglobin and red blood cell building stores in the diet.

**TUMORS OF THE URINARY BLADDER.** By Edwin Beer, M. D. with 52 illustrations including 8 in color. Baltimore. William Wood & Company. 1935. Price \$3.50.

This work tells the whole story of bladder tumors, based on twenty-five years experience, including etiology, pathology, symptoms, diagnosis, medical and surgical treatment with well illustrated operative technique.

**PRACTICAL CLINICAL PSYCHIATRY FOR STUDENTS AND PRACTITIONERS.** By Edward A. Strecker, M. D. and Franklin G. Ebaugh, M. D. Fourth Edition. Rewritten and enlarged with sixty illustrations and a glossary. Philadelphia. P. Blakiston's Son & Co., Inc. Price \$5.00.

In this fourth edition the authors include a special chapter on the psycho-pathological problems of childhood. The authors have retained and amplified the case method of presentation and in every other respect the work has been brought strictly up-to-date.

**THE NEXT HUNDRED YEARS.** By C. C. Furnas. Baltimore. The Williams & Wilkins Company. 1936. Price \$3.00.

The author speaks of this work as "the unfinished business of sciences." It is a provocative survey of the fields of scientific endeavor, concerning itself not so much with what science has done as with what it hopes to do. It is at once a criticism of the unsatisfactory world in which we live and a wholly delightful view of things to come.

**POSTMORTEMS AND MORBID ANATOMY.** By Theodore Shennan, M. D. Third Edition. Baltimore. William Wood and Company. 1936. Price \$9.00.

The new edition of this book, which is at once an ample treatment of special pathology and a manual on postmortem examinations, has been considerably revised, and much of the text has been rewritten, notably the sections on Endocarditis, Tuberculosis of the Lungs, Gastric Ulceration, the Splenomegalies, Nephritis and the Nephropathies.

The arrangement of the subject matter corresponds for the most part to the order in which a postmortem is conducted, and the fullest instructions are given for performing such an examination both in ordinary circumstances and in the special conditions which arise in medico-legal work. It is thus the type of book which is valuable not only to the student during his training, but in subsequent practice. A number of additional illustrations have been introduced for the new edition.

**AIDS TO MEDICINE.** By James L. Livingstone. Fifth Edition. Baltimore. William Wood & Company. 1935. Price \$1.50.

This work is intended to supply the student with a book of pocket size for purposes of revision.

In this, fifth edition, very little change has been made in the arrangement, but the whole book has again been brought up to date.

# CANNED FOODS AND THE PUBLIC HEALTH

## II. Iron and Tin Salts

• The question is sometimes raised as to whether the metallic salts which canned foods may acquire from contact with tin containers are objectionable from the standpoint of public health. We are glad to present the facts in answer to this question.

The modern "sanitary style" can is manufactured from "tin plate". As the name implies, tin plate is made by plating or coating thin steel sheets with pure tin. This tin coating cannot be made absolutely continuous; under the microscope, minute areas can be noted in which the steel base is exposed.

Foods packed in plain or unenameled cans are, therefore, exposed to iron and tin surfaces. In enameled cans, foods are mainly in contact with inert lacquers baked onto the tin plate at high temperatures. However, because of minute abrasions in the enamel covering, unavoidably introduced during fabrication of the can, foods in enameled cans may also have limited contacts with iron and tin surfaces.

It is common knowledge that canned foods may acquire small amounts of these metals from contact with their containers. The acquisition of iron and tin salts in this manner is an electrochemical phenomenon (1); and the amounts of these metallic salts thus acquired will depend, among other factors, upon the character of the food. In general, the acid foods tend to take up more of these

metals; especially when air is admitted after the can is opened. However, the quantities of tin or iron present in canned foods, as a result of reaction with the container, are small; the analytical chemist reports these amounts in "parts per million".

As far as iron is concerned, it is commonly accepted that the amounts of this element—recognized as essential in human nutrition—which may be present in canned foods, are innocuous.

As to the tin salts which may be present in canned foods, the Department of Agriculture has authorized the following statement as the result of its own investigation:

"Our own experimental work, involving the ingestion of far larger amounts of tin than any previously reported, and supported by the experimental evidence of other investigators, leads us to the conclusion that tin, in the amounts ordinarily found in canned foods and in the quantity which would be ingested in the ordinary individual diet, is for all practical purposes, eliminated and is not productive of harmful effects to the consumer of canned foods." (2)

It may therefore be stated that the amounts of tin and iron salts normally present in commercially canned foods are without significance as far as possible hazard to consumer health is concerned.

## AMERICAN CAN COMPANY

230 Park Avenue, New York City

(1) Kohman and Sanborn, *Ind. Eng. Chem.* 20, 76, 1373 (1928); *ibid.* 22, 815 (1930).

(2) "Food-Borne Infections and Intoxications", F. W. Tanner, *Twin City Pub. Co., Champaign, Ill.* 1935, p. 90.

*This is the tenth in a series of monthly articles, which will summarize, for your convenience, the conclusions about canned foods which authorities in nutritional research have reached. We want to make this series valuable to you, and so we ask your help. Will you tell us on a post card addressed to the American Can Company, New York, N. Y., what phases of canned foods knowledge are of greatest interest to you? Your suggestions will determine the subject matter of future articles.*



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# ILLINOIS MEDICAL JOURNAL

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## Editorial

### THE MEDICAL PROFESSION RESENTS UNTRUE ACCUSATIONS

Socialistic propagandists have provoked much resentment through the accusation that with medical men the economics of the service is paramount to the service itself.

A British poet laureate wrote decades since

*"A lie that is all a lie may be met and fought with outright.*

*A lie that is half a truth is a harder matter to fight."*

Both varieties of lie enter into all this argument about science and economics.

At the outset it is manifestly false that:

1. A man, a woman or their family, either as individuals or as a civic unit are ever refused medical attention because of inability to pay. As a matter of fact such unfortunates receive medical care without cost and of a far better quality than they receive gratis for any of the other necessities of life such as food, shelter, clothing, heat or sanitary conveniences.

2. That the medical profession employs one method of treatment for the rich; *almost* its equal for *very poor*, the patients enjoying the patronage of the plutocrats in subsidized hospitals or foundation sponsored clinics, and *very inferior methods* for the economically squeezed "white collar class," too self-respecting to be healed as "the poor and destitute" and too financially involved to assume the prerogatives of "the rich."

3. That all physicians are rolling in wealth and that to be a doctor is to be a self-coining mint.

4. That doctors never have any personal ailments nor obligations; that their families are orchidaceous and can secure food, clothing, lodging, education and other sine-qua-non's of existence merely by having father pick up his hat and twist his fingers and cry aloud "Abracadabra, hocus pocus, Little table set yourself."

5. That a doctor can spend some eight years

in specialized preparation to practice medicine and that when he has come forth from accepted medical colleges and "hung out his shingle" he knows far less about his chosen profession than the man who has been busied all these years by coining money hand over fist through the pursuit of the manufacture of shoes, or extra fine cheeses, or rayon underwear.

6. That, even if a doctor is skilled in surgery, "bone-setting," diagnosis, therapeutics or other scientific skullduggery he is as the least of all the Mongolian idiots when it comes to such simple matters of another ilk as adding up two and two and getting four for an answer.

7. That, even if a doctor does not partake of political graft and jugglery, he is such an ingrained nincompoop that he does not know what it is all about.

8. That scientific medicine is a virginal field pleading for exploitation as a center for the experimental processes based upon the concept that medicine is a commodity available for mass purchase and for job lot distribution, and that until big business discovered medicine the science was as yet barely more than a stillborn child.

9. That medicine's Moses lies in Communism. That the way out to the promised land for both profession and public lies through the road of lay control—political, foundation and endowment.

10. That physicians overcharge and that the bulk of sickness expense goes to the physician with a complete disregard of the overwhelming overhead which is distributed among hospitals, nurses, etc.

11. That the doctor never does any charity whereas taking into account the proportion of a physician's accounts receivable that are collectible the average physician does a business of which approximately only 50 per cent is ever collected, while the recognized charity work of any doctor is easily from one-third to one-half of his practice.

12. That "health insurance" gives a patient as good medical service or even better than is available under the present plan of independent service and that the "panel doctor" earns enough from his panel work to keep body and soul together let alone to permit himself to keep step with the ever progressing science of medicine.

13. That by increased taxation and with a group of political appointees to run the medical

profession, sickness and deformity will magically disappear from the nation.

14. That such socialized health service will cost United States citizens less than they pay now for the best medical care in the world.

As to the "half-truths" the profession itself is compelled to realize that:

1. The present system of the scientific administration of scientific medicine must have poignant re-draughting of its general scheme.

2. Better distribution of physicians is demanded.

3. Abridgement of training time must be accomplished in some way.

4. Group practice, if accepted, must be at the discretion and under domination of the profession itself.

5. Part pay clinics, hospitals, corporations and foundations practicing medicine may temporarily lessen the cost to a certain few patients but in the end this lay interference really wrecks the morale, the structure and the efficiency of the legitimate practice of medicine.

### ILLINOIS SUPREME COURT HOLDS THAT A CORPORATION CANNOT PRACTICE MEDICINE

At the February, 1936, term of the Illinois Supreme Court there was handed down a unanimous decision to the effect that a corporation cannot practice medicine in this state.

The case on which this decision was based was an appeal from a clear cut opinion given by Judge Michael L. McKinley of the Superior Court of Cook County and whose decision of April, 1935, has just been confirmed by the Supreme Court of this State.

Below we publish the decision in full.

Docket No. 23169—Agenda 48—October, 1935.

The People of the State of Illinois, by Otto Kerner, Attorney General, Appellee, v. The United Medical Service, Inc., Appellant.

MR. JUSTICE WILSON delivered the opinion of the court:

The Attorney General of the State of his own accord filed a verified petition in the superior court of Cook County for leave to file an information in the nature of a *quo warranto* to require United Medical Service, Inc., a domestic corporation, to show by what warrant it holds a franchise to practice medicine or any of its branches or any system of treating human ailments. The permission sought was granted, and an information containing the same allegations as the petition was filed. Thereafter the respondent moved to



vacate the order and to strike the information on the ground that it was filed in violation of section 8 of the Quo Warranto act. The motion was allowed and the respondent was ordered to plead answer or demur to the petition instead of to the information. The respondent filed nine pleas to the petition and a single replication was filed to the pleas. General and special demurrers were interposed to eight of the replications. In lieu of settling the pleadings and proceeding to a trial the parties elected to present an agreed case conformably to Rule 48 of this court and stipulated the facts. The statement of the agreed case presented to the trial court consisted of the stipulation of facts and of thirteen questions of law. After an extended hearing the court found the respondent guilty as charged and rendered judgment of ouster against it. From that judgment the respondent prosecutes this appeal.

The respondent was incorporated as a corporation for profit on December 15, 1930, with an authorized capital of 400 shares of common stock, having a par value of \$100 per share. Although its statement of incorporation enumerates seven objects for which it was formed, the pursuit of only one is assailed in this case, namely, the promotion of individual and public health through the study, prevention and treatment of disease.

The agreed statement of facts shows that in 1933 the respondent established in Chicago a clinic, designed and denominated by it as a fixed-fee, low-cost medical service, with fully equipped offices to provide for the examination and treatment of all physical and mental ailments; that since 1933 it has continuously maintained the clinic and offices, and that all medical and surgical services which the respondent offers are rendered solely by physicians and surgeons licensed and registered by the State of Illinois. It also appears that on several occasions since 1933 the respondent has published announcements of its character and purpose in the form of paid advertisements in the public press, one of which states that the corporation itself is not a charity, nor is it associated with or supported by any charity, philanthropic, educational or tax-supported organization, and affirmatively declares that it is organized for profit. Charges for specific medical services, such as examinations of the heart, the lungs, the eyes, ears, nose and throat, and four other so-called regional examinations, laboratory examinations and X-ray examinations, are set forth in the advertisement. With respect to the medical staff this advertisement announces: "All essential medical service in general health and diagnostic examinations and treatment will be rendered to patients by competent physicians trained and experienced in their respective fields of medicine and registered under the laws of the State of Illinois." Persons seeking and receiving examinations and treatments in and through the clinic enter into contracts with the respondent, and the latter receives the fees for such services and pays the physicians and surgeons in its employ their remuneration. The corporation itself has never applied for or received a license to practice medicine in Illinois.

The respondent contends that the trial court lacked jurisdiction to enter a judgment of ouster because the record contains neither an order granting leave to file

an information nor an information. The record in the present case discloses that the information filed pursuant to leave granted was stricken upon the respondent's motion, which specifically charged that the proceeding did not conform to section 8 of the Quo Warranto act. Section 1 of this statute, (Ill. State Bar. Stat. 1935, p. 2518; Smith's Stat. 1935, p. 2569); so far as pertinent to this inquiry, provides that in case any domestic corporation exercises powers not conferred by law, the Attorney General, or State's attorney of the proper county, either of his own accord or at the instance of any individual relator, may present a petition to any court of record of competent jurisdiction for leave to file an information in the nature of a *quo warranto* in the name of the People of the State of Illinois, and that if such court shall be satisfied that there is probably ground for the proceeding it may grant the petition and order the information to be filed and process to issue. Section 8, approved July 6, 1933 (Laws of 1933, p. 856), and in force when this action was instituted, declares that it shall be unnecessary hereafter in any action of *quo warranto* to set out the cause of action in the writ but that it shall be sufficient to summon the defendant in a summons in the usual form, commanding him to appear and answer the plaintiff in an action of *quo warranto*, and that the issue shall be made up by answering, pleading or demurring to the petition as in other cases. This section was taken from, and its language is identical with, section 15 of the Practice act of 1907 to the extent that the latter relates to *quo warranto* proceedings. (Cahill's Stat. 1931, p. 2173; Smith's Stat. 1931, p. 2194.) Section 15 was exactly the same as section 10 of the Practice act of 1872 and was in force when the Quo Warranto act was revised in 1874. The new section of the Quo Warranto act deals only with the form of summons and the manner in which the issues shall be made up. It does not conflict with any of the preceding sections of the statute but is in entire harmony therewith. *People v. Moeckel*, 256 Ill. 598.

The respondent, in its motion to strike the information, did not charge that probable ground for the proceeding was wanting. Following the entry of the order striking the information the respondent pleaded to the petition, which charged that by means of its corporate franchise the respondent had unlawfully usurped the franchise of engaging in the practice of medicine and in the diagnosis and treatment of the diseases of human beings as governed by the Medical Practice act. The petition and the information in this particular proceeding contain identical allegations and make the same charges. Furthermore, the parties entered into a stipulation by which they submitted an agreed case to the trial court, as provided for by the Civil Practice act and Rule 48 of this court. They expressly stated that the agreed case contained the points of law at issue between them, and that "the court shall decide thereon and shall render judgment therein, according as the rights of the said parties in law may appear." An examination of the "statement of agreed case" shows that the respondent did not raise the question of whether the filing of an information was prerequisite to the



rendition of the judgment of ouster against it. While jurisdiction of the subject matter cannot be waived, the method of acquiring jurisdiction of a particular case and irregularities in respect thereto may be waived. The defendant, in a case in which the court has general jurisdiction, may dispense with process altogether, waive irregular process and appear. (*Wilson Bros. v. Haege*, 347 Ill. 140; *Brown v. VanKeuren*, 340 id. 118.) The respondent is not in a position to challenge the method of making up the issues, as it induced and acquiesced in the procedure which it now attacks.

The next contention is that sections 8, 82, 83, 84 and 85 of the Business Corporation act deprived the trial court of jurisdiction to determine the issue made up in a quo warranto action under the provisions of the Quo Warranto act. Section 148 of the Corporation act in effect prior to July 13, 1933 (*Cahill's Stat. 1931*, p. 756; *Smith's Stat. 1931*, p. 767); provided that when any domestic corporation, under color of any of the powers granted by the statute, committed any act in excess of such powers, such act should be voidable at the instance of the Attorney General, in a direct proceeding in the nature of a quo warranto instituted by him against the offending corporation. Section 1 of the Quo Warranto act was also in force, and provided, among other things, that when any domestic corporation (1) did or omitted any act which amounted to a surrender or forfeiture of its rights and privileges as a corporation, or (2) exercised powers not conferred by law, the Attorney General, or State's attorney of the proper county, either of his own accord or at the instance of any individual relator, should commence quo warranto proceedings. By Section 6, it was further provided that if the corporation should be deemed guilty the court might give judgment of ouster against the corporation from the franchise. The section also provided that instead of judgment of ouster from a franchise for an abuse thereof, unless the court is of the opinion that the public good demands such judgment, the court may fine the corporation found guilty in any sum not exceeding \$25,000 for each offense.

The Business Corporation act effective July 13, 1933, expressly repealed the Corporation act of 1919 as amended. The new Corporation law contains no provision for a quo warranto action, nor does it purport to repeal the portion of section 1 of the Quo Warranto act under which this action was brought. The respondent argues, however, that since the Business Corporation act is complete in itself, governing the whole field of corporations for profit, and expressly repealing the Corporation act of 1919, it also repealed by implication, all other existing statutes to the extent that they were inconsistent with the latter statute. Specifically, the respondent asserts that section I of the Quo Warranto act, to the extent that it provides a remedy in an action of quo warranto for the exercise of powers not conferred by law, has been abrogated by sections 8, 82, 83, 84 and 85 of the Business Corporation act. Section 8 (*Ill. State Bar Stat. 1935*, p. 850; *Smith's Stat. 1935*, p. 809) relates to the defense of ultra vires. It provides, in part, that no limitation upon the business, purposes or powers of a corporation shall be asserted in

order to defeat any action at law or in equity between the corporation and a third person, or between a shareholder and a third person, involving any contract to which the corporation is a party, or any right of property or any alleged liability of whatsoever nature, but such limitation may be asserted, "(c) in a proceeding by the State, as provided in this act, to dissolve the corporation, or in a proceeding by the State to enjoin the corporation from the transaction of unauthorized business." Subdivision (c) of section 8 refers to and is controlled and limited by the qualifying language set forth. The remedy by injunction to restrain the corporation from the transaction of unauthorized business is not applicable, because the present case is not one "at law or in equity between the corporation and a third person or between a shareholder and a third person involving any contract to which the corporation is a party or any right or property or any alleged liability of whatsoever nature." Recourse to section 82, 83, 84 and 85 of the Business Corporation act cannot avail the respondent, as those sections purport to relate solely to, and by their express provisions deal with, involuntary dissolution and receivership. Section 82 provides, in part, that a corporation may be dissolved involuntarily by a decree of a court of equity, upon information filed by the Attorney General, when it is made to appear to the court that "(c) the corporation has continued to exceed or abuse the authority conferred upon it by law, or has continued to violate any section or sections of the Criminal Code of the State of Illinois after a written demand to discontinue the same shall have been delivered by the Secretary of State to such corporation." Sections 82 and 83 are declaratory of the common law right of the sovereign to dissolve corporations which violate its laws. (*People v. Blue Rose Oil Co.* 360 Ill. 397.) The relator concedes that the respondent is lawfully empowered to pursue some of its expressed objects, and this action is directed against only one of its activities, namely, the treatment of disease as a business, for monetary gain. The Attorney General does not seek to dissolve the corporation nor to place it in receivership. The facts do not bring the case within the contemplation of the express provisions of the Business Corporation Act.

In support of its contention the respondent, however, invokes the familiar canon of statutory construction, that the revision of a subject by a later statute evinces a legislative intention to substitute its provisions for the earlier law upon the same subject. (*People v. Gould*, 345 Ill. 288; *Village of Atwood vs. Cincinnati, Indianapolis and Western Railroad Co.*, 316 id. 425.) It is equally well established that the repeal of laws by implication is not favored, and it is only where there is a clear repugnance between two laws and the provisions of both cannot be carried into effect that the later law will prevail and the earlier one be considered repealed by implication. (*People v. West Englewood Bank*, 353 Ill. 451; *Galpin v. City of Chicago*, 249 id. 554.) Where two statutes successively enacted, with relation to the same subject, are seemingly repugnant, it is the duty of the courts so to construe them, if possible that the subsequent act will

not repeal the antecedent one by implication, and, if two constructions are possible, that one will be adopted which operates to support rather than to repeal the earlier act by implication. *Walgreen Co. v. Industrial Com.* 323 Ill. 194; *Village of Glencoe v. Hurford*, 317 id. 203; *People v. Burke*, 313 id. 576.

It may be conceded, as the respondent insists, that sections 82, 83, 84 and 85 of the Business Corporation act of 1933 are the counterpart, among others, of section 148 of the earlier act. This concession, however, cannot avail the respondent, for it does not follow that section I of the Quo Warranto act, concerned, in part, with the corporate exercise of powers unlawfully conferred, is superseded by the sections of the Business Corporation act which provide for the involuntary dissolution and receivership of corporations by informations in equity. There is no inconsistency of repugnance in the language of the statutes, since the Quo Warranto act expressly provides for quo warranto proceedings where a corporation exercises powers not conferred by law. This the Business Corporation act does not prescribe. Had the General Assembly intended to repeal any part of section I of the Quo Warranto act it would undoubtedly have employed appropriate language to accomplish that purpose.

Complaint is made that the legal remedy of quo warranto was not available to the Attorney General in this cause because adequate remedies obtain under the general equity powers of the court and under the express provisions of the Medical Practice act. Upon the basis of the agreed facts the relator maintains that the respondent corporation is engaged in the treatment of disease for profit—a power not conferred upon it by law. It is true that one of the corporate objects found in the certificate of incorporation is the prevention and treatment of disease for profit. Whether the certificate of incorporation, however, confers such rights and powers as are authorized is a matter for judicial determination. When a corporation for profit is formed under the general act, the law, and not the statement or the certificate, must determine what powers can be exercised. (*People v. Chicago Gas Trust Co.*) 130 Ill. 268. The relator charges in the present case that there has been a usurpation or unlawful assumption of a franchise by the respondent. A corporate franchise proceeds from the sovereign power, and the people have the right at all times to inquire into the title by which such a franchise is claimed or exercised and to have a judgment of ouster if the franchise was improperly granted. (*People v. Larsen*, 265 Ill. 406.) The only relief sought and obtained in this case was the ouster of the corporation from the assumption and usurpation of a franchise charged to have been improperly granted to it. This improper grant of power is being used, it is charged, in violation of the Medical Practice act. Quo warranto therefore properly lies. High on Extraordinary Remedies, (3rd ed.) sec. 627; 22 R. C. L. p. 682; *People v. Ridgely*, 21 Ill. 65.

It is also claimed that the provisions of the Medical Practice act afford a proper remedy for prosecuting the respondent. Section 24 of the statute (Ill. State Bar Stat. 1935, p. 2055; Smith's Stat. 1935, p. 2047)

provides: "If any person shall hold himself out to the public as being engaged on the diagnosis or treatment of ailments of human beings \* \* \* and shall not then possess in full force and virtue a valid license issued by the authority of this State to practice the treatment of human ailments in any manner, he shall be guilty of a misdemeanor," and subject to punishment by fine of not less than \$100 nor more than \$500, or by confinement in the county jail for not more than one year, or both fine and imprisonment, in the discretion of the court. From the express language of the statute, it is apparent that the penalties prescribed are directed against individuals practicing medicine without licenses. The punishment by incarceration provided by the Medical Practice act is not applicable to corporations practicing medicine and is obviously directed against individuals. Under the statute the maximum fine fixed for a violation of the provisions against practicing medicine without a license is \$500. If section 24 applies to both corporations and individuals the only method of punishing a corporation is by fine. On the other hand, when a judgment is entered under the Quo Warranto act for the exercise of power illegally granted it is that of ouster, or, in the discretion of the court, a maximum fine of \$25,000. Under the circumstances of this case it is clear that section 24 of the Medical Practice act does not afford an adequate remedy and would not prevent recurrences of the unlawful exercise of a power improperly conferred upon corporations such as the respondent. Furthermore, the present proceeding is not a criminal proceeding and criminal conduct is not charged. While a proceeding by information in the nature of a quo warranto is a substitute for the ancient writ and retains the character of a criminal prosecution to the extent that the proceeding is in the name of the people and criminal in form, it is a civil remedy calling upon the defendant to show by what warrant a franchise or privilege is exercised. (*People v. Barber*, 289 Ill. 556; *People v. Drainage Comrs.* 282 id. 514; *Independent Medical College v. People* 182 id. 274.) The precise question presented here, whether a corporation may lawfully engage in the practice or treatment of human ailments and the treatment of disease, as a business, is not a criminal question.

The respondent next contends that since section 2 of the Medical Practice act does not state what act or acts may be regarded as constituting the practice of a system or method of treating human ailments, jurisdiction to render the judgment of ouster was wanting. The title of the statute is, "An act to revise the law in relation to the practice of the treatment of human ailments for the better protection of the public health and to prescribe penalties for the violation hereof." Section 2 provides that no unlicensed person shall practice medicine or any of its branches, or midwifery, or any system or method of treating human ailments without the use of drugs or medicine and without operative surgery. The third section prohibits the issuance of a license to any person unless he passes an examination of the qualifications therefor by and satisfactory to the Department of Registration and Education. The next section declares that each applicant for such examination shall,



among other things, submit evidence under oath satisfactory to the department that he has attained the age of twenty-one years, that he is of good moral character, and that he has the preliminary and professional education required by the Medical Practice act. Section 5 fixes minimum standards of professional education to be enforced by the department in conducting examinations and issuing licenses. Section 24 specifically prohibits the performance of certain acts unless a license has been issued, namely, the diagnosis and treatment of ailments of human beings; the prescription of a form of treatment for the palliation of physical ailments of persons with the intention of receiving compensation therefor; and the maintenance of an office for the examination and treatment of persons afflicted or supposed to be afflicted by any ailment.

The title of the Medical Practice act is broad enough to include not only the practice of medicine in all its branches but also the limited treatment of human ailments without drugs or medicine. The legislative intent manifest from a view of the entire law is that only individuals may obtain a license thereunder. No corporation can meet the requirements of the statute essential to the issuance of a license. From the stipulated facts it appears that the respondent has been engaged in the pursuit of activities which under section 24 it could not pursue without a license. It is clear that the respondent, owing to its corporate character, can not obtain a license to engage in the practice of medicine. The mere fact that in a criminal prosecution of an individual for a violation of the Medical Practice act it is necessary to specifically charge in the indictment the act or acts which compose the offense of practicing a system or method of treating human ailments without a license (*People v. Brown*, 336 Ill. 257) cannot avail the respondent in this case as it is not charged with the commission of a criminal offense. Whether the statute expressly defines what constitutes the practice of a system or method of treating human ailments is therefore immaterial in the present proceeding.

The respondent corporation earnestly contends that the ownership of a clinic, with offices where the treatment of disease is engaged in solely by licensed and registered physicians and surgeons who are employed by the corporation which receives the fee charged the patients, does not constitute the practice of medicine by the corporation. The respondent argues that the fact that the contract of payment for the medical services to be rendered is made between the corporation and the patient does not change the professional relationship between the patient and the various licensed and registered practitioners who treat him in the corporation's office. To support its contention the respondent places reliance upon *State v. Brown*, 37 Wash. 97, in which the statute attacked required an examination and license in order to "own, \* \* \* run or manage" a dental office. The decision that this statute was void, and also the decisions in *State Electro-Medical Institute v. Platner*, 74 Neb. 23, and *State Electro-Medical Institute v. State*, 74 id. 40, cited by the respondent, are contrary not only to the views of this court expressed in *Winberry v. Hallihan*, 361 Ill. 121, *Dr. Allison, Dentist, v. Allison*,

360 id. 638, and *People v. Peoples Stock Yards Bank*, 344 id. 462, but also to the weight of authority. (*People vs. Woodbury Dermatological Institute*, 192 N. Y. 454; *State v. Bailey Dental Co.* 211 Iowa, 781; *People v. Painless Parker, Dentist*, 85 Colo. 304; *Parker v. Board of Dental Examiners*, 216 Cal. 285.) In the recent case of *Dr. Allison, Dentist, v. Allison*, *supra*, this court observed that the practice of a profession is subject to licensing and regulation and is not subject to commercialization or exploitation. "To practice a profession," the court said, "requires something more than the financial ability to hire competent persons to do the actual work. It can be done only by a duly qualified human being, and to qualify something more than mere knowledge or skill is essential. \* \* \* No corporation can qualify."

Our attention is directed to the fact that no provision of the Business Corporation act, or of any other statute of this State, prohibits a corporation organized for profit from rendering any and all medical services by duly licensed and registered physicians and surgeons. The misuse of power sought to be coerced in this case is a right and privilege which individuals, only may obtain by compliance with the provisions of the Medical Practice act. It is true that both section 2 of the Corporation act of 1919 as amended and section 3 of the Business Corporation act provide, with certain named exceptions not material in this case, that corporations for profit may be organized for any lawful purpose. Manifestly, the Business Corporation act, in authorizing the formation of corporations for "any lawful purpose," does not purport to include the practice of the learned professions, such as medicine and law.

The final contention of the respondent corporation which requires consideration is, that in so far as the Medical Practice act prohibits it from practicing medicine by employing licensed physicians and surgeons to that end, the act is an unreasonable exercise of the police power and transcends the due process of law clauses of sections 2 and 14 of article 2 of the constitution of this State and the first section of the fourteenth amendment to the Federal constitution. The police power of the State includes the power to enact comprehensive, detailed and rigid regulations for the practice of medicine, surgery and dentistry. (*Douglas v. Noble*, 261 U. S. 165; *Dent v. West Virginia*, 129 id. 114; *People v. Witte*, 315 Ill. 282.) There is no right to practice medicine which is not subordinate to the police power. (*Lambert v. Yellowley*, 272 U. S. 581; *People v. Walsh*, 346 Ill. 52.) The Medical Practice act of 1923 recognizes the different methods of treating human ailments and prescribes reasonable and uniform regulations for testing the qualifications of persons who desire to practice medicine in all its branches and persons who desire to practice some limited form of treating human ailments. *People v. Walder*, 317 Ill. 524; *People v. Witte*, *supra*.

Reliance is placed, however, on *Liggett Co. v. Baldridge*, 278 U. S. 105, a case involving the validity of a statute of the commonwealth of Pennsylvania which provided that every pharmacy or drug store should be owned only by a licensed pharmacist, and that no cor-



poration, association or copartnership should own one unless all the members or partners were licensed pharmacists. The State Board of Pharmacy refused to grant the Liggett Company a permit to carry on its business on the ground that all of the stockholders of the corporation were not pharmacists. It appears that the corporation was conducting an ordinary business—namely, the operation of a drug store—and that it neither engaged in nor assumed to practice a profession. The United States Supreme Court, in holding the act invalid, observed that mere stock ownership in a corporation owning and operating a drug store could have no real or substantial relation to the public health, and that the statute was, accordingly, an unreasonable and unnecessary restriction upon private business. The Pennsylvania act did not purport to deal with the requirements for engaging in a profession. It does not follow that because a person may have a constitutional property right to operate a drug store he has a like absolute right to engage in the practice of professions such as medicine, dentistry or law. Neither a natural person nor an intangible entity can complain if unable to fulfill the requirements reasonably prerequisite to obtaining a license to engage in a particular profession. Manifestly, the case of *Liggett Co. v. Baldridge*, supra, is not parallel with the case at bar. We find nothing in that case which conflicts with the well-established rule that the State may deny to corporations the right to practice professions and insist upon the personal obligations of individual practitioners. *Semler v. Dental Examiners*, 294 U. S. 608; *Winberry v. Hallihan*, supra; *People v. Peoples Stock Yards Bank*, supra; *People v. Painless Parker, Dentist*, supra; *Parker v. Board of Dental Examiners*, supra.

The judgment of the superior court is right, and it is therefore affirmed.

#### JUDGMENT AFFIRMED.

#### RESULTS AND DANGERS IN TREATMENT OF AMEBIASIS: SUMMARY OF FIFTEEN YEARS' CLINICAL EXPERIENCE AT THE MAYO CLINIC

In Philip W. Brown's Rochester, Minn. (*Journal A. M. A.*, Oct. 26, 1935), review of the results of the treatment of amebiasis during the last fifteen years, 278 of the 834 patients (33 per cent) had evidence of active amebiasis on admission, 424 (50 per cent) had intermittent diarrhea associated with various abdominal complaints, some of which were and some of which were not improved by antiamebic treatment, and 132 (16 per cent) were considered as having latent amebiasis. In the latent group were listed fifty-one patients with chronic ulcerative colitis, in all of whom colitis had persisted after antiamebic treatment. Of the 834 cases, 523 afforded sufficient data to warrant tentative conclusions as to the results of treatment. The primary results of treatment with the organic arsenicals is much better than with emetine or ipecac. Failure to obtain a cure, in addition to the occasional reaction, in only 9 to 15 per cent of cases, is most encouraging although still not at the desired goal. Too few results are available on the efficacy of the oxygenated quinolines. The high

percentage of failures with alkaloids and the much better results with the arsenicals suggested the value of combining emetine and an arsenical, the former to be used only in sufficient dosage to control acute symptoms, thereby keeping well below even a minimal danger of poisoning, and the latter to be used in smaller doses and yet prove effective in eradicating the amebas. The results confirmed this opinion, for in 150 cases there were eighteen primary failures, or 12 per cent, on treatment at the clinic. Ten of these patients were later cured, leaving eight regarding whom no further data were available. The final results were that treatment failed in 5.3 per cent and was successful in 94.7 per cent of the cases. Of the 125 patients whose original treatment failed, sixty were later cured; twelve persisted with the disease in spite of continued treatment, and for fifty-three no further data were available. With present knowledge, the "reclaiming of failures" lies in a systematic and conservative variation in the treatment. If failure has followed the use of emetine and treparsol, success is unlikely to follow their continued administration; likewise, the possibility of drug reaction increases. Two or three courses of chiniofon are prescribed (21 Gm. a week, with a week's interval between courses). If amebas persist, six weekly injections of arsphenamine or bismuth emetine iodide, with large doses of bismuth subcarbonate, are employed. In other words, varying the ammunition minimizes reactions to the drugs and seems more effective in finally obtaining a cure. As the author reviews the sixty cases finally considered as cured, the barrage of arsphenamine, emetine, bismuth emetine iodide, chiniofon, carbarsone, acetarsone, treparsol, vioform and ipecac is indeed startling, and he asks what good any one drug is when such a variety is used. In any event, a cure was eventually obtained.

#### STIMULATION OF MAMMARY GLAND DEVELOPMENT

C. K. Weicher, Cincinnati, compared the mammary glands of pregnant rats fed 0.5 Gm. of desiccated thyroid daily, beginning with the first day of pregnancy with normal controls. Although some stimulation of the mammary gland is recognized in the animals fed thyroid even on the fifth day of pregnancy, an extraordinary increase of mammary tissue occurs between the seventh and ninth days. From the ninth day until the end of pregnancy the series of animals fed thyroid showed a marked difference not only in the amount of mammary tissue but in the earlier appearance of secretion in the alveoli. The authors suggest that under conditions of heightened metabolism resulting from thyroid feeding the normal estrin level may be lowered, thus removing the inhibitory effect of the estrin on the hypophysis, at least to a degree. That organ may thus elaborate its hormones to a greater extent than normal. The corpus luteum and hypophyseal hormones are therefore in all probability present in relatively greater concentrations than in the normal animal, the mammary glands responding to the altered conditions by exceptionally rapid development.

## SUGGESTIONS ON PREPARING COPY

### WRITING A CRAFT AND AN ART

"It is a craft when practiced for the uses of daily life by persons of ordinary endowments; it is transformed into an art when to excellence of craftsmanship is added the formative principle that differentiates an art from a craft.

"It might be supposed that anyone who wished to write would know what he wished to write about. But many merely wish to write. To recommend that such a person choose a subject which he knows well is not so superfluous as it seems."

A Manual for Writers: Manley and Powers

"Accurate use of a large vocabulary of words clear and sharp in their meaning marks the scholarly writer."

The Writing of Medical Papers: Mellish

A medical editor welcomes copy on new discoveries or novel applications of old principles when presented in attractive form. -It therefore behooves the writer to limit his subject closely, to take time to condense and polish the text, verify the statistics, illustrations and tabular matter and present his ideas in a form to appeal to the reader.

Medical literature is accumulating at such an enormous rate that it is comparable to the astronomer's theory of the "Expanding Universe." To add to the mass, unless the contribution is novel and well presented, is a liability rather than an asset.

Following the publication of "Observations on Copy" last year there was some improvement in the papers prepared for the annual meeting and the suggestions are revised and repeated at this time in the hope that they may be useful in the preparation of papers for the forthcoming meeting.

Much time, labor and expense on the part of writers, editors, printers and others can be saved by compliance with these suggestions.

*Titles of articles* should be brief and explicit. Otherwise they cannot be readily located in the Index Medicus and the author loses the advantage of that excellent publicity.

*Paper and Style:* All copy should be submitted on standard size white paper, 8½x11 inches and *double spaced throughout*. Page to be blank 1½ inch top and left side; inch on bot-

tom and right side. *Copy to be original.* (Author keeps a carbon copy.)

*Pages Numbered:* All pages including tables, legends and bibliography, to be numbered consecutively. Also all illustrations to be numbered and marked "top" and have author's name on back.

*Title, author:* Title of paper, author's name and city address should appear in order stated at top of first page; author's street address at end of article.

The contents of paper should be in the best possible style and turned over to the official reporter with the distinct understanding that proof will be submitted to authors for the correction of *typographical errors only*. If changes from copy are desired they will be made at *author's expense*.

*Spelling:* Spelling as in Stedman's Medical Dictionary is considered standard. He does not recognize such barbarisms as oedema which he calls "variant," nor have we adopted the short form of though, thorough, etc., even if some lexicographers have.

Abbreviations not in dictionaries should not be used except in tables with explanatory footnotes.

### Words Often Misspelled

Abscess	inflamed
anemia	inflammation
anastomosis	inoculation
anesthesia	myxedema
benefited	per cent. (2 words with period)
bactericidal	preventive
calcareous	septicemia
carcinoma	smallpox
caseous	syphilis
desiccate	thorough
diphtheria	though
dyspnea	through
edema	tonsillitis
esophagus	tryparsamide
goiter	x-ray
hemorrhage	
Hippocratic	

Numbers under 10 to be spelled out; over 10, use Arabic numerals.

*Compound Words:* Many medical terms formerly written separately or hyphenated are now run together as in German, which has a certain scientific advantage however cacaphonous the sound. Recent editions of both Dorland and Stedman have pharyngomaxillary and sternocleidomastoid which were formerly hyphenated.

Stedman writes all gastro compounds without hyphens. Funk & Wagnall's Standard uses hyphens, indicating that medical practice follows the German style more closely.



*Capitalization:* No capitals unless proper name or beginning a sentence: thus doctor, physician, dentist, pediatrician.

Names of diseases and medicines not capitalized unless named for a *person*.

X-ray not capitalized unless beginning a sentence.

Titles of articles when referred to *in the article* are not capitalized, or if capitalized should be in quotes.

*Illustrations:* All cuts required for illustration are furnished at *author's expense*. Clear photographs and wash drawings can be reproduced in halftone cuts; line drawings in zinc etchings. Minimum size halftones cost about \$4 each; minimum etchings about \$3. *Negatives* of radiograms, either glass or film, are not acceptable; *prints* should be submitted.

*Bibliography:* References to literature should appear in numerical order in the text and the bibliography should be collected at end of article with the same numbered references. It is rarely necessary to write names of medical journals in full. (J. A. M. A.)

Since 1927 the Index Medicus has maintained a uniform standard of references which answers every requirement of brevity, uniformity and accuracy that makes it the supreme arbiter in this field. This system was directed to our attention by Mr. Alfred L. Robert, medical librarian of Columbia University, and we have redacted copy recently submitted to the Journal in accordance with this plan. This was facilitated by the cooperation of the staff of the Crerar library.

If authors will follow this system from this date it will save extra work for all concerned.

The example quoted by Mr. Robert was taken from February (1934) ILLINOIS MEDICAL JOURNAL as follows:

"Ford, H. L., Deep neck infection—surgical approach, Illinois M. J. 65: 117-128, 1934."

It will be noted that this contains the author's name and initials, title of paper, name of journal abbreviated, volume number in *Arabic numerals*, pages, *first and last*, and year.

The data include everything necessary to locate the article in a library with nothing superfluous.

Similarly *quotations from books* should contain the author's name, title of book, place of publication, publisher's name, year and pages.

Arabic numerals are specified instead of Roman as they are more familiar and less liable to error in copying.

*Phony Locutions:* "He operated six cases; others were unoperated." It seems incredible that any physician or surgeon could be guilty of such a sentence, but unfortunately it is not so uncommon. Others "operate" patients. Why not operate "in" the case or "on" the patient.

The following quotation from Stedman's Medical Dictionary may clarify this usage:

"Case (kās) (L. casus, an occurrence). An instance of disease with its attending circumstances. The patient is not the case; the *patient* dies or recovers, the *case* terminates fatally or ends in recovery; the surgeon operates *in* a case, but operates *on* the patient."

Smith, Brown, etc. Why not Smith, Brown, et al.?

"Cases in whom" should be cases in which, but "patient in whom" is correct.

We again quote the excellent summary of language to avoid from the Journal of the Medical Association of Georgia.

#### REPREHENSIBLE MEDICAL ENGLISH

##### TWELVE VALUABLE POINTS IN THE LANGUAGE OF MEDICINE

1. "Case" must not be used for "patient," nor "cure" for "treatment."
2. "Tubercular" means "nodular"; "tuberculous" means "infected with the bacillus of tuberculosis."
3. "Cystoscope" is a noun and must not be used as any other part of speech.
4. It is possible to "operate a cotton-gin," *but it is not possible to "operate a patient"—nor his appendix.*
5. "Acute appendicitis" is common, but an appendix cannot be "acute."
6. "Acute abdomen" is beyond the pale.
7. "Pathology" means the "science of disease"; it is therefore absurd to speak of "pathology in the right lung."
8. "Positive serology" is the worst type of jargon: apparently "positive Wassermann reaction" is usually meant.
9. "Specific" and "luetic" are convenient to obscure meaning from patients' relatives, but "syphilitic" is better in writing for the medical profession.
10. It is incorrect to say the patient had "no temperature." One may say that there was "no elevation of temperature," but it is shorter to say there was "no fever."
11. "Shot" is perhaps the most abused and overworked word in medical literature. Shot is of lead.
12. Bad spelling is unpardonable, so a good dictionary is indispensable.

—*Jour. Med. Assn. of Ga.*



## MEDICAL ECONOMICS

Edited by the Committee on Medical Economics

of the

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C. E. Wilkinson, M. D.

Illinois State Medical Society  
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Address all letters and communications to the Chairman.

The unselfish enthusiasm of conscientious workers in any field is most encouraging and stimulating to all. Having just returned from the annual meeting of the Northwest Regional Conference in Chicago, we are encouraged to continue our attempts to make the rank and file of the medical profession of Illinois realize the dangers that confront the future of the practice of medicine, not only from a strictly economic viewpoint, but also from a scientific one. The attendance at the Conference was influenced adversely by the extreme weather we have had throughout the West for the past month. However, attendance from the states of the northwest was better proportionately than it was from those states immediately contiguous to Chicago. The attendance from Illinois and Chicago was noticeably poor. So much so in fact that some of the men who were influential in forming and running the Conference in former years commented on the same. One of them offered the opinion that evidently the men of the northwest had been better sold on the importance of giving time and thought to the economic problems than those around Chicago. Naturally, this was a little discouraging to those of us, who were instrumental in getting the conference to Chicago this year. The program as outlined in this column last month, went through exactly as scheduled. It was most ably presented and the discussions were thorough and illuminating. It is hoped that the papers and the discussion will be published in the ILLINOIS MEDICAL JOURNAL in the next few months, so that they will be available to all members of the society. At the election of officers, Dr. Braasch of Rochester, Minnesota, one of the founders of the Conference, was elected President, and Dr. Fred Moore of Des Moines, Iowa, was elected Secretary. It was decided to hold the next annual meeting in Chicago next February and the Iowa State Medical Society offered to act as host. It seems as though the future of this conference is assured and the pol-

icy of the members to hold their annual meetings in Chicago rather than in the northwest, certainly is or should be a great opportunity for the members of the Illinois State Medical Society to follow and take an active part in the developments of medicine.

Quietly but surely some of the provisions of the Social Security Bill are being prepared for use in Illinois. This is in line with many other states and the consensus of opinion of the men from these states was that it is foolish to oppose the same, but rather the wise thing to do was to help in shaping the work and to cooperate with the state supervisor and try to keep the work in those lines which will do the least damage to the practice of medicine and the most good to the health of the public. Any other attitude seems foreordained to disaster. Dr. Jirka, State Director of Public Health, has shown in this case as in all others a definite desire to be guided by the opinion of his fellow practitioners and we as medical men should appreciate that attitude and help him in every way possible instead of hindering him by either criticism or lack of support.

According to word from Springfield, the Illinois Emergency Relief Commission will cease to function on May 1, 1936. At that time the problem of the care of both the chronic indigent and the unemployed will still be with us and it is incumbent on the medical profession to be ready to meet that day with its attendant problem. During the last year the care of the indigent has been transferred from a Township responsibility to a County one. In the greater portion of the state this has not worked satisfactorily to either the poor, the medical profession, or the politicians. With a greatly increased load thrown on the County Relief organization, under the direct control of the County Supervisors, who maintain that they are short on funds at this time, the problem of the medical care of the indigent will become very acute. The medical profession of every county should meet and talk

this matter over with the idea of forming some kind of a plan for the care of the "County Poor" which will be satisfactory to all concerned. To put off consideration and action on this important problem will be to aggravate the acuteness of the trouble on May 1. There is some talk of return of responsibility to township units, as it has been in the past and as the local supervisors desire, but at this time, no action in that regard has been taken.

Increased interest by lay organizations in medical problems is evidenced by the demand for speakers to address them. This is one of the obligations of the medical profession and any man invited to give a talk to any such organization in his part of the state should accept the responsibility. The Council has made available a list of such speakers from every part of the state and whenever a man whose name is on that list is requested to make a talk, he should accept the opportunity to do something definite for Organized Medicine. We find that most lay organizations are quite sympathetic to the problems of medicine and when the same are presented to them in a proper manner, are in accord with our contention that no change is needed in the United States in the manner of conducting the practice of medicine. However, they believe that some improvement can be made and certainly all of us agree with them and are eager to make any and all such improvements suggested, provided they are for the good of the public.

This month our column contains an article by Dr. C. G. Farnum of Peoria. In addition to carrying a definite message, we feel sure that you will find it most interesting and unusual.

E. S. HAMILTON,  
Chairman of Committee on  
Medical Economics.

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#### THE PARABLES OF SOPHISTES, THE SEER The Just and Upright People That Ignored Self-Preservation

Forasmuch as the Younger Practitioner was weary from the burden of his labours and inasmuch as his mind was in turmoil from many perplexities, he betook unto himself a day apart and did journey unto the habitation of Sophistes, the Seer, that he might find answer to the questions that harrassed his soul and that he might

drink deep from the fountain of learning of the Man of Wisdom.

Saith he, "Oh, Sophistes, the Seer, for lo, these many comings and goings of the seasons have I practiced the healing art in behalf of the people of my city. I have observed the doings of my colleagues with a mighty interest nor have I reproved them or rebuked them when they did evil in my sight. I have attempted to commune with them upon the problems that well up into my mind and found little but ignorance, indifference or confusion.

"Each planting time I have taken myself into the concourses of my fellows and have harkened with care unto the spoken wisdom of mine elders, for there abideth in me a great faith in the holiness of our profession. There have I heard much of the art and the science of our calling and of the newer things in healing and chirurgie, but only with rareness have I heard someone who hath seen the evil that is under the sun, extoll on the dangers that compass us about. And such have been for the larger part only appeals for defense against those who wish us not well, and those things that my mind seeketh receive no reply.

"Thereby come I to thee, Oh Sophistes, the Seer, for thine heart hath had great experience of wisdom and knowledge. I would learn of thee thine answer to the vexatious questions that harrass my spirit, for long have I communed with mine own heart and reply cometh not and my soul is torn with doubtings.

"Much have I read and to many exhortations have I harkened pertaining to encroachment upon the field of our labours and in each instance it cometh as a call to arms in defense of some added theft of our rights or our possessions. Ever hath it been thus, that which hath been is now, and that which is to be hath already been.

"In the military from the days of the warlike Hittites it hath been proscribed that the ablest defense is a vigorous offense. Yea, even the gladiator in the arena followeth this course.

"Wherefore then, Oh Sophistes, remain we unprepared for these battles until we are attacked and then forsooth, must rush forth unprepared? And moreover, when each battle is finished, why fold we our hands and why rest we until another forthcometh?

"It befalleth that no army winneth all its battles. Thereby, since we fight only in defense,



it cometh to pass that the enemy gradually taketh from us this and that of our possessions and our field narroweth to the vanishing point.

"Why, Oh Learned One, hath not an offensive campaign been evolved out of the wisdom of our leaders, that not only protecteth us at time of thefts, and onslaught, but mayhap might even recover some of our possessions that have been taken away?"

Then spake Sophistes, the Seer:

"Beyond the mountains from the country of my birth lay another country of many fertile plains and valleys and the people of that country were a people of great wisdom and intelligence. Skilled were they in the arts and the sciences and diligent were they in all things that were good for the sons of men.

"So great and manifold was their wisdom that they did walk in the way of uprightness and integrity and so greatly did they excell in zeal and diligence that they did prosper with exceeding greatness. Their habitations were like unto no others, their fields and their vineyards were larger and their flocks were without number.

"From generation unto generation their race waxed greater in numbers and in wisdom and in the approbation of the learned and judicious and their name was precious among all peoples.

"Howsoever so given were they to their occupations and to the furtherance of their wisdom and the well being of their neighbors that they gave scant heed to the protection of their fields or their flocks or their households.

"Now it came to pass that many ill meaning persons of the surrounding countries and those who were not of that race, with covetousness and avarice in their souls and malice in their hearts, did attempt to steal way their possessions. Oft-times in the diligence of their labours this was unheeded and it was only when great fields were taken away that much indignation arose among them and though they were unskilled in arms, in the fury of their wrath, they did valiant battle against the enemy. It came to pass that sometimes they drove the enemy forth and did preserve their properties but all too oft the hand of the enemy prevailed against them.

"Howsoever the battle was no sooner finished than they went their way to their labours and gave no further heed to wars and warfare.

"Forasmuch as this repeated itself times without number throughout the generations it came

to pass that their possessions became less and less to the point of nothingness through the transgressions of their enemies.

"Of a truth there were a few who cried out against such folly but they were as a voice crying in the wilderness to which none paid heed.

"From time to time the lustful tetrarch of the province, being not of their race, did impose upon them taxes of great burdensomeness and though they did protest each time with great vehemence and though their anger was hot against such injustice, the collection of the taxes went on and even greater ones were imposed. Many of their fields were taken away or reduced, many of their possessions were taken away from them, their flocks were taken over by those of inferior race and they were reduced to penury and want, yea, it remindeth one of Nineveh and Babylon!

"Yesteryear at harvest time there cometh a learned traveler from that country who recounteth to me that the Imperial Dictator hath now decreed that the entire country and its people and all their possessions shall be placed under his domain and that this just and upright people shall henceforth put forth all their labour for the Imperial Dictator and his horde of cohorts which are as grasshoppers for multitude. He further saith that again there is a great indignation and a mighty call to arms but he feareth that by reason of their unskillfulness in warfare they will fall before the army of the Dictator and that henceforth they will be little better than slaves and will be bound by the chains of darkness and that the last days of this righteous people shall be worse than the first.

"Verily, my Young Friend, thou hast spoken wisely—I fear me that unless our profession ceaseth to lie supinely and riseth only when trampled under foot, unless it developeth a definite campaign of aggression, then it walketh into the darkness of oblivion even as that worthy race of which I have told thee.

"Of a truth a campaign of aggression fitteth unseemly into a life that devoteth itself to the furtherance of the arts and the sciences, yet it behooveth each one who so occupieth himself so to do, forasmuch as that offereth the only means of self preservation and defensive fighting resulteth only in losses that lead unto disaster."

So saith Sophistes, the Seer.

C. G. FARNUM, M. D. Peoria, Illinois.



## EDUCATIONAL COMMITTEE REPORT

FEBRUARY—A MONTH OF PROGRESS

## SPEAKERS' BUREAU:

Although February was a short month, there were many club meetings held with programs devoted to health subjects.

54—Programs were arranged by the Educational Committee and these were possible because of the cooperation of the following doctors in filling the requests:

F. N. Wells	D. P. MacMillan
M. R. Guttman	R. L. Green
W. O. Thompson	Leo K. Campbell
J. T. O'Neill	Frederick C. Test
W. W. Bauer	R. H. McPherron
C. S. Skaggs	F. M. Jansey
Myrtle Jean McBean	Meyer Solomon
Dr. Bennett of Canton	J. R. Ballinger
J. J. Gill	Edmund Jacobson
E. H. Ochsner	Ray C. Armstrong
Elias Selinger	Ben H. Huggins
H. W. Elghammer	Ralph H. Kuhns
Harold Shellow	George W. Post, Jr.
Frank F. Maple	Clarence A. Neymann
Kenneth H. Schnepf	William Beecher
E. S. Hamilton	C. P. White
Clara Gottschalk	Charles N. Pease
Arlington Ailes	Norris J. Heckel
F. R. Towner	P. A. Teschner
Walter Fischer	Carolyn MacDonald
Frank J. Jirka	

A great variety of health topics were suggested by the program chairmen of these lay organizations. Among the subjects presented by representatives of the Educational Committee Speakers' Bureau were these:

Facts and Fancies in Plastic Surgery.  
 Outstanding Discoveries in Scientific Medicine.  
 Fat and Thin.  
 Conquest of Children's Diseases.  
 Popular Beliefs That Are Not So.  
 Colds, What Are They?  
 The Social Security Act.  
 Mental Hygiene for Adolescents.  
 Feet and Posture.  
 The Story of Blood Transfusion.  
 First Aid and Accident Prevention.  
 Recreation and Health.  
 Insomnia and Mental Health.  
 The Story of Bacteria.  
 Socialized Medicine.  
 Your Eyes.  
 Communicable Diseases Among Children.  
 Children and the Movies.  
 Your Skin and How to Care for It.  
 Appendicitis.  
 Allergy.  
 The Kidney and Related Diseases.  
 Relation of the Home to Health.  
 Eat, Sleep and Wash given before an assembly of 1,300 high school boys.

## SCIENTIFIC SERVICE APPOINTMENTS:

23—Scientific programs were presented before County Medical Societies.

The names of the county societies and the doctors who presented programs are listed:

Bureau County—D. H. Levinthal.  
 Scott County, Iowa—R. H. Jaffe.  
 Vermilion—Frederick H. Fall—Gynecological and Obstetrical Clinic.  
 Vermilion—Channing W. Barrett.  
 Will-Grundy—N. C. Gilbert.  
 Livingston—John F. Carey.  
 Sangamon—Joseph Brenneman.  
 McLean—C. I. Reed.  
 Winnebago—M. Herbert Barker.  
 Will-Grundy—Fred M. Drennan.  
 Henry—Ford Hick.  
 Henry—C. M. McKenna.  
 St. Joseph's Hospital, Elgin—William J. Pickett.  
 Champaign—James H. Hutton.  
 DeWitt—Joseph E. F. Laibe.  
 Decatur—Isaac A. Abt.  
 Will-Grundy—Leon Unger.  
 Whiteside—Harry E. Mock.  
 Sherman Hospital, Elgin—C. R. G. Forrester.  
 LaSalle—Edward Tatge.  
 LaSalle—Edward Roling.  
 LaSalle—Tell Nelson.  
 Will-Grundy—Frank B. Kelly.

## MATERIAL ON SOCIALIZED MEDICINE:

In addition to the list of cities given in the January report, the Educational Committee has sent material on socialized medicine to doctors and debating teams in the following cities:

Armington	Evanston	Oak Park
Altamont	East Moline	Peoria
Beecher City	East St. Louis	Pekin
Brownstown	Geneseo	Pratt, Kansas
Belmont	Hinsdale	Princeton
Blue Island	Havana	Quincy
Chicago	Independence, Kan.	Rock Island
Centralia	LaGrange	Rockford
Charleston	Lincoln	Springfield
Carbondale	Litchfield	Salem, Ohio
Clay City	Murphyshoro	Silvis
Clinton	Mendota	Spring Valley
Carlyle	Maywood	St. Francisville
Danville	Macomb	Trenton
DeWitt, Nebraska	Moline	Tallula
Decatur	Montrose	Urbana
DuQuoin	Marion	Waverly
Effingham	Niles, Michigan	Walhyt
Elgin	Ottawa	

## RADIO:

21—Programs were given over Chicago Radio stations. The talks presented by members of the Chicago Medical Society were approved by the Educational Committee. At the present time the Committee sponsors health programs over the following stations at the hours indicated.

## Tuesdays—

9:35 A. M.—WBBM.  
 10:30 A. M.—WJJD.  
 1:45 P. M.—WAAF.  
 2:30 P. M.—WGN.

## Thursdays—

10:30 A. M.—WJJD.

## Fridays—

1:45 P. M.—WAAF.

Members of the Society are urged to listen in and also to tell their patients of these broadcasts. The

Committee does not announce that copies of the talks are available, yet many requests do come in. Letters or cards of approval of these broadcasts sent to the stations are of course a help in showing the amount of interest in these health broadcasts.

During the month of February talks were given by Harry A. Oberhelman—Goiter.

Edward H. Ochsner—What About Socialized Medicine?

Arthur S. Sandler—Adolescence.

John B. O'Donoghue—Stomach Ache.

G. Henry Mundt—Sinus Disease.

Percy E. Hopkins—Cancer.

Earl O. Latimer—Goiter.

W. C. Bornemeier—Humidity and Health.

Clarence S. Duner—Pain in the Chest.

Clarence L. Wheaton—Common Colds.

E. H. Blair—Periodic Health Examinations.

Frank F. Maple—The Woman of Forty.

S. C. Kehl—Feeding the Child for Health.

Myrtle Jean McBean—Recreation and Health.

W. D. Sutliff—Pneumonia.

Raymond F. Elmer—Appendicitis in Children.

Jay Ireland—Broken Bones.

Charles E. Pitte—Dangers of Colds.

R. M. Hutchison—Cocksurenness in Diagnosis.

Norman Leshin—The Most Common Human Illness.

S. Perry Rogers—Men Hurt at Work.

#### MISCELLANEOUS:

528—Health articles were sent to Illinois libraries.

6—Articles on child care sent to Blackhawk Park Nursery School.

75—Letters mimeographed for Public Relations Chairman of Woman's Auxiliary.

#### PRESS SERVICE:

Health articles approved:

Three Most Common Forms of Heart Disease.

Chicken Pox.

Tonsils and Adenoids.

Scarlet Fever.

Cod Liver Oil.

Our Children and their Allergies (2 articles).

20—Health articles sent to newspapers for monthly publication.

403—Health columns sent to newspapers outside of Chicago.

77—Health columns sent to Chicago and suburban papers.

The *News Gazette* of Champaign is now on the mailing list to receive health articles for publication over the signature of the Champaign County Medical Society.

#### NEWSPAPER PUBLICITY FOR MEDICAL SOCIETIES:

48—Releases for Henry County.

41—Releases DeWitt County.

45—Releases Whiteside County.

57—Releases LaSalle County.

33—Releases Perry County.

Newspaper service to Chicago Medical Society branches:

5—Releases to newspapers for Calumet Branch.

4—Releases to newspapers for Northwest Branch.

4—Releases to newspapers for North Shore Branch.

5—Releases to newspapers for Englewood Branch.

2—Releases to newspapers for Northside Branch.

#### SPECIAL SERVICE TO COUNTY MEDICAL SOCIETIES:

328—Notices Bureau County Medical Society.

426—Notices Henry County Medical Society.

296—Notices LaSalle County Medical Society.

153—Notices Whiteside County Medical Society.

139—Notices Perry County Medical Society.

Respectfully submitted,

JEAN MCARTHUR, *Secretary.*

#### THE WOMAN'S AUXILIARY of THE CHICAGO MEDICAL SOCIETY

##### *Activities*

##### MEETINGS

Sherman Hotel.

Luncheon with the Presidents of the Branch Medical Societies as guest.

Speaker—Mrs. Robert Fitzgerald of Milwaukee, Wisconsin, President-Elect of the Woman's Auxiliary of the American Medical Association.

Subject—Activities of State Auxiliary.

La Argentina—Civic Opera House to raise funds for the Lay Education program and distribution of Hygeia to Reading Rooms, Libraries, Schools and Y. M. C. A. and Y. W. C. A.

Laity Day Luncheon and program at the Blackstone Hotel.

Speaker—John R. Neal, M. D., Chairman of the Illinois State Legislative Committee, Springfield, Illinois.

Guests—Officers of the Illinois League of Women Voters, Parent Teachers Associations of Illinois, Public Health Chairmen of the Districts of the Illinois Federated Women's Clubs, President of Federated Clubs and other Organizations.

Plans are now being made for booths with exhibits on Health Education and Hygeia for the Women's Pageant of Progress at the Navy Pier, April 18th to 26th, 1936.

##### MEMBERSHIP DRIVE

Started December, 1935.

South Chicago Branch of the Chicago Medical Society, organized December, 1935.

Many new members have been added to the Woman's Auxiliary.

##### EVERYTHING IS UNDER THE WEATHER

The dog has a case of phlebitis, the roof has shingles, the bees have hives, the parrot has peritonitis. The windows have panes, the cistern has never been well, the new laundered clothes are mangled now, and the maid has turned into a belle. The setting hen's chickens are breaking out, and the chimney 'tis said has the flue, the grass has been cut, the flivver is tired, and the milk in the pitcher is blue. The lamps are "lit" up, and the pictures are hung, the rugs have been beaten, the clocks all have ticks. Oh! things surely seem, as the black parson said, like the world's "in a heluvafix."

## THE NATIONAL CONGRESS OF PARENTS AND TEACHERS SPONSORS SUMMER ROUND-UP OF THE CHILDREN

The National Congress of Parents and Teachers and its state and local units realize the importance of working with organized medicine in conducting health programs. The Advisory Committee on the Summer Round-Up of the Children is making progress in educating the state and local units as shown by its 1936 Plan of Procedure pamphlet, excerpts of which follow.

"The Summer Round-Up of the Children is a campaign to send to the entering grade of school or kindergarten a class of children as free as possible from remediable defects. The ultimate goal is to educate parents to the need for early periodic examination of their children. Since this is an educational movement, parents should be encouraged whenever possible to take their children to the family physician and dentist for the examination. Where it is not possible for parents to do this, group examinations are advised."

"A meeting of the Executive Committee of the local unit should be called by the President for the purpose of discussing the campaign. The school superintendent, or principal (or both), the health officer, school physician, the school nurse, the kindergarten or first grade teacher, the secretaries or representatives of the county medical and dental associations and representatives of all civic organizations should be invited to attend the meeting, for the Round-Up is a cooperative project of the parent-teacher association."

"The organization and arrangement for physicians and dentists to examine the children should be made by a joint council of representatives from the local parent-teacher association, the local Medical Society, the local Dental Society, the Health Department, or the School Health Service of the Public Schools, a representative of the Public Health Nursing service, the School Superintendent, or his representative, and such other agencies as may be deemed advisable.

"This group should determine how the examination shall be made, after consultation with the examiners.

"The DATE for the Spring Examination

should be decided upon in consultation with this joint council."

"All preparations for the examination should be made in consultation and cooperation with the joint council. It is important that time be allowed for the examining physician and dentist to discuss the condition of each child with the parent.

"Wherever possible examinations at the office of the family physician and dentist should be encouraged. Where examinations are made at the office of the family physician and dentist the official examination blank should be used and should be returned to the local Summer Round-Up Chairman following the examination with the findings and recommendations of the physician and dentist."

"The Follow-Up Committee, in cooperation with the Public Health Nurses, should visit the homes during the summer months, following the examination, and urge parents of children with defects to seek the family physician and dentist for advice and treatment. When cases of financial inability are discovered, arrangements should be made for assistance from local organized relief agencies.

"Parent-Teacher members are in a position, as are those of no other organization, to visit the homes, stress the value of sound health, both for the child and the community, round up the children for examination and urge the parents to take them to the family physician and dentist for further advice and treatment."

"It should be clearly understood that the Congress does not advocate free medical or dental service for the correction of defects, but refers the child to the family physician and dentist for treatment, unless it is found necessary to seek some benevolent agency to provide the needed service in selected cases.

"Until parents become fully educated to the responsibility for the health of their children and realize that periodic health examinations are desirable from birth on, the Summer Round-Up will be necessary. Parents will then seek for their children periodic examinations by the family physician and dentist and will pay an adequate fee for this service. We have not yet arrived at the time when all parents understand and recognize this need, and the examination in the spring brings to the attention of the parents the physical defects which need correction."



## GOVERNMENT ABSTRACT OF VENEREAL DISEASE INFORMATION

Venereal Disease Information is a monthly publication prepared by the U. S. Public Health Service for distribution among the medical profession throughout the United States. It measures approximately 6 by 9 inches and ranges in size from 25 to 75 pages.

It is the purpose of the Public Health Service in issuing this publication to provide in condensed form a monthly summary of the scientific developments in the diagnosis, treatment, and control of syphilis and gonorrhea. More than three hundred American and foreign journals are reviewed for this work. Abstracts are made of articles describing laboratory, pathologic, and clinical work in the field of venereal diseases.

The most important literature on every phase of the subject is presented in the form of brief abstracts that are easily read. An index for the year is published with the December issue.

During the past year thousands of physicians found this publication useful in enabling them to keep abreast with developments in venereal disease work.

The cost of this publication is only fifty cents per annum, payable in advance to the Superintendent of Documents, Government Printing Office, Washington, D. C. It is desired to remind the reader that this nominal charge represents only a very small portion of the total expense of preparation, the journal being a contribution of the Public Health Service in its program with State and local health departments directed against the venereal diseases. If you wish to secure the valuable service which this monthly magazine provides, send fifty cents to the Superintendent of Documents, Government Printing Office, Washington, D. C.

## PROFESSIONAL SERVICES NOT TO BE ADMINISTERED THROUGH A THIRD PERSON

According to an action taken by the House of Delegates of the American Medical Association it is unethical for a third person to act as an intermediary in furnishing medical service. The following is the House of Delegates resolution:

"It is unprofessional for a physician to dispose of his professional attainments or services to any lay body, organization, group or individual, by whatever name called, or however organized, under terms or conditions which permit a direct profit from the fees, salary or compensation received to accrue to the lay body or individual employing him. Such a procedure is beneath the dignity of professional practice, is unfair competition with the profession at large, is harmful alike to the profession of medicine and the welfare of the people, and is against sound public policy."

## DR. RAYMOND LEAVES ROCKEFELLER INSTITUTE TO HEAD SEARLE RESEARCH

Announcement has just been made by G. D. Searle & Co., Chicago, of the appointment of Dr. Albert L. Raymond as Director of their Research Laboratories.

To take this Searle appointment, Dr. Raymond resigns from the Rockefeller Institute of Medical Re-

search, with which he has been connected for the past nine years, the last seven of which he was an associate of Dr. Levene.

For two years he was National Research fellow, working on problems connected with the biological mechanism of carbohydrate degradation.

Dr. Raymond is a Californian and gained his Ph.D. at the California Institute of Technology, Pasadena, in 1925. Afterwards he spent three years part-time teaching at California Institute of Technology and at the University of California.

He is a member of the American Chemical Society and the American Society of Biological Chemists.

## ANNUAL MEETING OF THE AMERICAN COLLEGE OF SURGEONS

The American College of Surgeons will hold its Sectional Meeting for the States of Illinois, Virginia, Tennessee, Missouri, Indiana, Ohio, West Virginia, and Kentucky, in Louisville, Kentucky, on March 19-20-21, next.

Clinics will be held at the local hospitals. Special programs by leading surgeons and hospital authorities will be held at the Brown Hotel, which will be headquarters. The banquet will be on Thursday evening and a public session will be held at the Municipal Auditorium on Friday evening.

The profession of Louisville and of Kentucky extends a cordial invitation to the physicians of Illinois to be present and to help make this session a success.

A. T. McCORMACK, M. D., *Secretary*.

532 Main St., Louisville, Ky.

## PREVENTION OF BIRTH INJURY AND ITS RESULTING MORTALITY FROM THE STANDPOINT OF THE OBSTETRICIAN

Charles Edwin Galloway, Evanston, Ill. (*Journal A. M. A.*, Feb. 15, 1936), points out that birth injury may occur in any type of delivery. Therefore, it is essential that a careful explanation be given to parents, and the most valuable explanation comes from the consultant, most often the pediatrician, who is not present at the birth. The incidence of birth injury is very difficult to ascertain. At the Evanston Hospital, investigation of the last 5,000 deliveries reveals that there were fifty-one major injuries including fatal cerebral hemorrhage. Besides these there were thirty-seven minor injuries including abrasions from forceps and other contusions of minor importance. At the same hospital an analysis of the fetal autopsies for the last ten years shows that 34 per cent of these fetal deaths including premature babies were due to cerebral hemorrhage. It also shows that 40.6 per cent of the autopsies on full-term babies dying at birth demonstrated cerebral hemorrhage. Of the various injuries cerebral hemorrhage, no doubt, occupies the primary position as to both severity and mortality. The author discusses the therapy and possible prevention of cerebral hemorrhage, brachial palsy, fractured clavicle, facial paralysis, sternomastoid muscle injury, rupture of the liver and breech delivery.

## Original Articles

### THE BACILLUS OF CALMETTE AND GUÉRIN (B.C.G.) IN THE IMMUNIZATION AGAINST TUBERCULOSIS

SOL ROY ROSENTHAL, M.D.

CHICAGO

Koch's original statement that only living tubercle bacilli producing a mild infection can accomplish immunization has weathered the vicissitudes of time. The use of old tuberculin, killed tubercle bacilli whether by heat or chemicals, lipoid extracted or lipoid free bacilli, have all proved to be futile in their protective properties against a tuberculous invasion.

Tuberculosis rather simulates syphilis, leprosy, melitensis, in that an immunity lasts as long as the organism remains parasitic in the body. In this way it differs from diphtheria, smallpox or typhoid fever in which the diseases or their vaccines renders the body refractive to reinfection from the same organisms.

Positive experimental evidence that immunity does exist in tuberculosis is expressed in Koch's phenomenon. Stated briefly, a tuberculous infected guinea-pig reacts to a subcutaneous reinfection with superficial necrosis, ulceration and spontaneous healing, whereas a non-infected animal develops after a time a tumor at the site of inoculation with generalization of the process. A safe method of applying living organisms to man and beast had its early beginnings when Theobald Smith showed that there were at least two types of tubercle bacilli, namely bovine and human, and that these strains were less virulent for the heterogenous hosts.

Von Behring applied the above principle with success in vaccinating calves. He used human tubercle bacillus which had been attenuated for six years. However, the danger of such a method is apparent in that the animals excrete tubercle bacilli in their milk over a long period of time. Calmette and Guérin working on the same hypothesis isolated a bovine tubercle bacillus from a heifer in 1908, and proceeded to attenuate this organism by culturing it on potato to which glycerinated (5 per cent) bile had been added. After 230 such transfers over a period of thirteen years, this organism was found to be aviru-

lent to guinea-pigs and rabbits even when given in large doses. Tubercles formed after inoculation which did not go on to caseation but rather to resorption.

Immunization with the above living attenuated bovine bacillus was begun on an experimental basis in calves (Guérin, Richat, Boissiere, Ascoli, Gerlach, the Ukranian Commission, Assis and Dupont (Brazil), the Commission of the National Research Council of Ottawa (Canada) and in anthropoid apes (Wilbert, Kraus, Gerlach). This work has shown that when B.C.G. (Bacillus of Calmette and Guérin) was introduced in suitable doses into animals free from preexisting tuberculosis and that when these animals were kept isolated for one to two months from all infectious contact, it conferred upon them along with tuberculous allergy, a manifest resistance to virulent infections incurred either by cohabitation, ingestion or inoculations which are of a mortal degree for control animals. This resistance lasts approximately eighteen months in cattle, but it can be maintained and reinforced by reinoculations.

Having established the avirulence of the organism and having shown that a certain amount of immunity was obtained in animals, the application of this vaccine in humans was justified, and thus in 1921 Weill-Hallé and Turpin in the Maternity Division of the Charité in Paris fed an infant born of a tuberculous mother 2 mg. of B.C.G. on the third, fifth and seventh days after

TABLE 1. COUNTRIES USING B. C. G. AND THE RESULTS OBTAINED THEREOF

County—City	No. Children Inoculated	Mortality Tuberculosis in per cent.	No. Not Inoculated	Mortality Tuberculosis in per cent.
Germany—Bleif ..... 203	203	0.5	98	3.0*
Belgium—Sieg ..... 2165	2165	6.0	2165	29.8*
Bulgaria—Sofia ..... 766	766	8.6	766	15.7*
Spain—Barcelona ..... 1065	1065	2.1	1065	11.0
Greece—Athens ..... 3421	3421	0.8	....	12.0
Holland—Utrecht .... 55	55	0	53	71.5*
Hungary—Ujhest .... 500	500	0.6	....	...
Poland—Warsaw ..... 8674	8674	12.2	....	38.0*
Rumania—Bucharest .60000	60000	1.3	....	25.0*
Russia—Kharloff ... 1500	1500	2 to 3	....	15 to 16
Sweden—Gothemburg. 4009	4009	2.3	8342	9.5
(Dr. Wassen)				
Sweden—Gothemburg. 230	230	0	....	0.4
(Dr. Wallgren)				
France .....280000	280000	3.4	....	15.9
Brazil—Rio ..... 2300	2300	0	....	15.1
Canada—Montreal .... 1700	1700	3.6	....	25.0*
New York ..... 208	208	0.9	350	8.0*
(Dr. Park) ..... 413	413	0.5	608	2.8

\*Contact with tuberculous individuals.



birth. The child who lived with its grandmother (also tuberculous) developed normally. Thus assured, 10 mg. of the vaccine was given to 317 children from 1921 to 1924 on the third, fifth and seventh days after birth (30 mg. all told)<sup>1</sup>. Only one child, who lived with his tuberculous mother, developed tuberculosis. From that time on B.C.G. has been used in tuberculous vaccination in France and her colonies, Roumania, Hungary, Sweden, Norway, South America, Africa, the United States, Holland, etc., so that at the present time several million infants have been thus protected. (See Table 1.)

The above chart is representative of the innumerable reports from every quarter of the globe where B.C.G. vaccination is employed. In every case a decrease in mortality from childhood tuberculosis is reported. Many of the reports were not sufficiently controlled so that their results may be questioned but the accurately controlled data of Wallgren, Park and Kereszturi are beyond dispute and they too show a reduction in death rates from tuberculosis where vaccination was employed.

However, the tuberculosis mortality in childhood is very low and one would question the advisability of vaccination. Yet, one loses cognizance of the fact that the majority of children, especially in congested areas, develop primary tuberculous foci as noted clinically by the tuberculin test and at the post mortem table. (Parrot, Küss, Ghon and author's personal experience). The following chart illustrates this point.

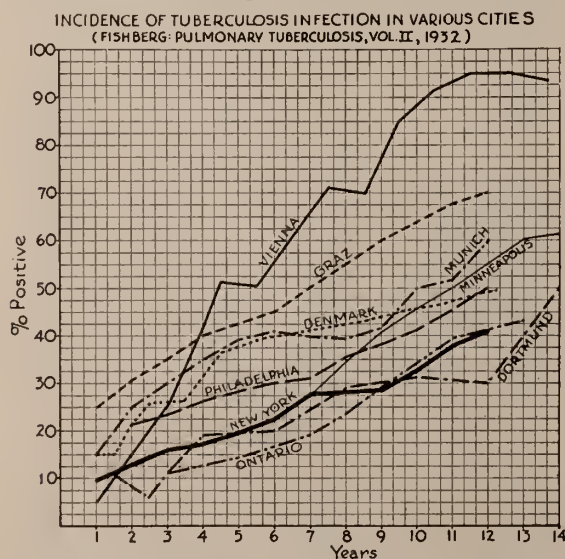


Figure 1. Incidence of Tuberculosis Infection

1. Each milligram contains 40,000,000 organisms.

The number of positive tuberculin reactions increases rapidly after the first year so that at the time of the fourteenth year the percentage is high, 40 to 95 per cent. Where the Mantoux test is employed and where increasing doses of tuberculin are given (up to 0.1 c.c. of a 1:100 solution of old tuberculin), the reactions approach nearer to the higher figures. This primary infection although acting benignly in the infant and child, is instigated by a virulent tubercle bacillus, as can be demonstrated by animal inoculation.

The presence of this virulent organism in the body is a constant source of danger to the individual, a fact generally admitted. Unquestionably, early generalization of the tuberculous process is endogenous in character and more evidence is being gathered to show that the so-called reinfection, i.e. the tuberculous process confined to one organ (most commonly the lung) is also to some extent of endogenous nature. From an anatomic standpoint this is unequivocal in a moderate percentage of cases (author's own experience).

Confronted with the facts then that a primary tuberculous complex occurs in the majority of peoples in civilized countries, that this infection is initiated by a virulent organism whose numbers are uncontrollable, it would seem logical to administer a vaccine of avirulent tubercle bacilli that are constantly assayed under the most exacting surveillance and whose numbers can be adjusted. It is admitted that absolute freedom from exposure to the tubercle bacilli would be ideal and superior to vaccination but in our present civilization this is not possible.

**Criticism.** The three important sources of attack against B.C.G. vaccination have arisen from 1, the Lubeck disaster, 2, the dissociation of the organism by Petroff and 3, the allergic state produced by vaccination.

1. The disaster in Lubeck, Germany, where many infants died from a virulent tuberculosis following oral vaccination has been shown unequivocally by the German Government (Bruno Lange of the Robert Koch Institute of Berlin) to be the result of gross carelessness on the part of the bacteriologist, who contrary to the dictums laid down by Calmette and Guérin cultivated virulent tubercle bacilli side by side with the B.C.G.!! An exchange of cultures resulted in



the vaccination of infants with virulent tubercle bacilli!<sup>1</sup>

2. Petroff claimed to have disassociated the B.C.G. into an 'S' form which was virulent for laboratory animals, and an 'R,' form which was avirulent for same. Other workers, using varying methods, have verified this work. However, for the past six years these reports have become fewer, indeed Petroff himself by personal communication to the writer stated that the present organism is probably 'R' in character and stable. Reed was unable to dissociate the Paris strain after a period of five years.

For the past year and a half the writer, using practically all methods described in the literature, has not been able to completely dissociate the B.C.G. (employing a culture that he received from Dr. Guérin with whom he had been working at the Pasteur Institute in Paris). It is true that a splitting up of the colonies into 'R' and 'S' forms does occur but the latter are only transient and are avirulent. In over 200 animals (guinea-pigs and rabbits) inoculated by varying routes there were no cases of progressive tuberculosis.

3. It is not within the scope of this paper to discuss allergy and immunity in tuberculosis. There are already numerous volumes on the subject. That these phenomena are not entirely estranged is clearly seen in the Koch's allergic phenomena (see above), the only evidence we have thus far that immunity in tuberculosis exists.

The detrimental effects of allergy in tuberculosis have only been shown conclusively in experimental studies, where two factors are paramount, 1. an hyperergic animal and 2. a massive reinfection. Although the former may be present in man, the latter is exceedingly rare. From exogenous sources the number of bacilli inhaled or otherwise entering the body is exceedingly small as compared to the amount employed experimentally (say 1 mg. intravenously!) Allergic animals tolerate small doses of virulent organisms with impunity.

Endogenously, massive reinfection in man may occur as from the breaking into the blood stream

of a caseous lymph node. This occurrence is exceptional. If the primary infection were affected with an avirulent organism, caseation and erosion of blood vessels would not occur. Early generalization if it transpires would be a benign affair (author's experience).

*Summary.* The bacillus of Calmette and Guérin by intensive laboratory studies has been shown to be avirulent and affects a sort of immunity against tuberculosis.

It is argued that as the majority of people eventually develop a primary tuberculous complex initiated by virulent organisms and thus a constant source of danger to the host, it would seem plausible to employ avirulent tubercle bacilli (B. C. G.) to effect this primary infection, as the latter may be constantly controlled and assayed.

1853 W. Polk Street.

#### DISCUSSION

Dr. Lloyd Arnold, Chicago: One could give an almost endless discussion on this paper. I only wish to touch upon two points briefly. One is the viewpoint of the bacteriologist and one the viewpoint of the individual interested in public health. From the bacteriological viewpoint, which is the viewpoint of a good many people who have worked with B.C.G., one of the most important questions we are investigating now is disassociation, that is, changing the environment of the bacterium and watching the changes in that bacterium as it adapts itself to the new environment. We are producing artificially certain stimuli, whether light waves or acid or alkali, food or living tissue or what not. Basically we are producing environmental changes, and then we study the bacteriological mechanism of adaptation. That is what disassociation is, in a nut shell. Bacteriologists are interested in studying that problem now. We know we can disassociate bacteria into virulent and avirulent and midway between groups. B.C.G. has been studied from that standpoint and, like the vast majority of all bacteria that have been studied, it is possible with drastic enough methods to produce disassociation. But you can do the same thing with the human tuberculosis strain; you can do the same with the typhoid bacillus and the same with the gonococcus or the meningococcus and streptococcus and all of them. It simply means that it is a common biological phenomenon.

The most important point is, if the Calmette method of culture is followed out and followed out rigidly, then disassociation doesn't take place. That's the important point, and that I think we all agree upon now.

It is possible to disassociate it by using drastic methods, but using the recognized method of Calmette, that he has followed out so carefully and painstakingly for almost thirty years now, that organism isn't disassociated; it remains stable, true to form. That it is possible to disassociate it from a bacteriological stand-

1. The laboratory of the writer is completely isolated. No other bacteria are cultivated but B.C.G. and all persons (including the porters) who enter the culture rooms are examined carefully for active tuberculosis (including x-ray and sputum examinations).

point, I will say it is. But from the safe standpoint, if we carry it through the proper culture medium, it doesn't disassociate, doesn't split off in virulent or in changed forms from the stock culture. From the public health standpoint, I think that is the most important thing.

I think most students that have observed public health work recognize declines in our tuberculosis mortality. We have little data on the morbidity curve; but our curve of mortality in tuberculosis has been gradually decreasing per 100,000 population. The decrease was rather rapid, the trend line has become a little less steep. Now, it has a slope to it, but the slope is the angle of the trend line, and the slope is smaller. The smaller the angle, from a public health standpoint, that usually means in all diseases, and I think it means in tuberculosis, too, that the methods we have used to reduce the incidence have yielded us the maximum results. And as the curve gets flatter and flatter it means we are getting all we can get out of the methods we are using. Then it is time to try something new in order to reduce it and, in order to get the angle to fall more, I think B.C.G. offers us something from that standpoint. I think it is safe. I think if we carry out the Calmette method of culture and the methods of control of animal inoculation, as we have been doing, I think it would be a safe method and I think from a public health standpoint we can go into the morbidity and mortality of tuberculosis quite at length. But, briefly, I think the methods we have been using, in the past we have gotten about all we can get out of them. We can apply them and keep on going a little lower and lower. We don't want to ignore or let up on anything we are doing. I think this is an added lever. And for those exposed, under proper controlled conditions, I think it is worthy of trying it out.

The paper is now open for general discussion and I would like to take the opportunity of calling on Dr. Tice, of Chicago, an internist and not a bacteriologist, if he will say just a few words.

Dr. Frederick Tice, Chicago: From a clinical standpoint we are all, of course, very much interested in the problem of tuberculosis. Personally my interest may be much greater than that of some of the others particularly because of tuberculosis in our family. It has been a subject that appealed to me very much, even as a medical student.

The work done recently, or at least called to our attention recently, by Calmette is most important. From a bacteriological standpoint I can not give you any additional information excepting as contained in a review of the literature. From personal inspection in the Pasteur Institute, Calmette convinced me that there was simply no contraindications for the use of the vaccine. From a clinical standpoint, I can only tell you that we have no further information because there have been no vaccinations in the State of Illinois. Some work has been done, as you know, in America and particularly by Overton of Nashville, Tenn. Up to the present time he has vaccinated several thousand cases without a single unfavorable result.

The problem to us as clinicians is simply, first, is

this a harmless procedure? We think from all we can learn that the question is not to be debated, that there is no harm if the technique is followed. And the second problem is, how much benefit is to be derived? That, of course, is a problem that can not be answered at this time. There seems to be a little diversity of opinion as to the question of allergy and immunity. We belong to the group that believes that the two are identical. We don't believe that they are separate entities or antagonistic. We also believe that the tuberculin test is the only means at our command at the present time to determine the existence of immunity; and if a tuberculin reaction is produced by the use of the vaccine, then we can conclude that we are producing a beneficial effect. How long that may exist is a problem that all workers using the vaccine are attempting to determine. Whether it will continue for two years, six years, eight or ten years, nobody knows. We believe that immunization in tuberculosis is one of the biggest problems that confront every physician and every public health officer today and we believe that this is a means unassociated with danger and capable of producing an unlimited amount of benefit; how much we do not know.

Dr. Robinson Bosworth, Rockford: I have been very much interested in this subject for some little time, largely because of the controversy which exists relative to whether or not the first infection type of tuberculosis confers immunity. We acknowledge the views of Myers of Minneapolis in which he cites the first infection type of tuberculosis as being a benign process, and the second or reinfection type being a malignant process. Myers has gone so far as to claim that it is much better to avoid the first infection type and therefore from that argues that vaccination from the Calmette vaccine establishing immunity or allergy as it does, places that individual in a dangerous position when he does receive his next infection, because it then will be followed by the malignant type instead of the first infection or the benign type.

I want to ask Dr. Rosenthal a question. I came in late, but I got one statement from him to the effect that the first infection type produces immunity, and I want to ask him again if he is strictly of the impression that the first infection type produces such a degree of immunity as will in the long run protect the *average* individual against the development of the malignant type or the second infection type of tuberculosis.

Dr. Maurice L. Blatt, Chicago: I believe that Dr. Arnold struck the keynote in this discussion when he said that the plane of incidence of mortality and morbidity in tuberculosis had reached a level of decline so slight that the necessity for some new procedure was indicated. This basis for proceeding to do the thing that is now under discussion is the position that Dr. Arnold has assumed.

The facts shown statistically by Dr. Rosenthal are not such that we who do pediatrics would be inclined to feel that all children need this vaccination. For instance, an incidence of primary infection of 45 in a city the size of New York, or an incidence of 66 even in Minneapolis at fifteen years of age, does not indicate the necessity for the use of the Calmette vaccine. It



indicates only that open cases of tuberculosis are still actively in contact with our young children, and it is quite within the realm of possibility to still further eradicate that intimate contact. Furthermore, the statement that children infected under five years of age are condemned to death is certainly controversial. We see many children under five years of age infected with tuberculosis and, unless subsequently reinfected, so that a malignant, ulcerating, caseous or generalized tuberculosis develops, these children go on and get well. We have seen a good many under one year of age so infected who react positively and give a positive history of infection.

Now, the one fear, Dr. Tice, is the fear of human fallibility. The Luebeck incidence is simply evidence of the fallibility of even the most careful effort. So, I believe that in time this problem should be attacked, as it must sooner or later be attacked, as a research problem and not as a public health measure.

Dr. Sol Roy Rosenthal, Chicago (closing): To answer Dr. Bosworth's question regarding immunity produced by the first infection I offer the following:

1. *Experimentally*: Koch's phenomena (see text).
2. *Clinically*: Notwithstanding the high incidence of the primary complex (about 70-80 percent.—post mortems, Cook County Hospital, Jaffé, the mortality from tuberculosis in Chicago is comparatively low (.057 per 100).

The natural primary infection is produced by virulent tubercle bacilli and although this lesion may be benign at first, it is always a source of danger to the host (Myer). I repeat then, that a primary lesion produced by controlled avirulent organisms would be ideal.

To Dr. Blatt, I wish to say that rigid isolation of the tuberculous patient is most desirable and is practiced in Chicago perhaps more efficiently than in most cities, yet tuberculosis continues to be the great white plague.

The millions of successfully vaccinated children with B.C.G. places this method far beyond the experimental stage.

## THE ART OF CANCER THERAPY

E. G. C. WILLIAMS, M.D.

DANVILLE, ILLINOIS

When a utilitarian craft develops its product to the state where efficiency is attended by features that are pleasing to the senses it becomes an art. In most instances where improved methods of manufacture have succeeded in establishing their value prejudices, taboos, ignorance and superstition must be overcome. In the ice trade it took twenty years to convince people that artificial ice is not loaded with ammonia and other chemicals and now the struggle is between

mechanical refrigeration and artificial ice to decide whether the new method is safer and more efficient than the old.

General and special surgical practices have become the arts that they are by overcoming the prejudices against anesthetics, fears of hospitals and innumerable superstitions. Obstetrical practice at its best is now an art of the first plane having overcome more superstitions and taboos than any other branch of medicine.

Cancer therapy now lays its claim to consideration as an art because of the perfecting of coordinated methods and the abundant statistical proofs of the results of the application of these methods that are rapidly commanding the admiration and respect of the medical world.

Those of you who have been in cancer work know the bitter struggle against certain superstition and also know that the medical profession at large is not without blame in the perpetuation of these obstacles. Among these are the repeated advice to the patient to let a growth alone until it causes trouble, the indiscriminate cutting into tumors for diagnostic purposes, the idea that a cancer has roots, the idea that x-ray and radium will scatter the disease and numerous others.

In other years cancer therapy was considered the field of the general surgeons and other methods, such as x-ray, radium and electrosurgery were to be found in the anteroom of the morgue and were to be used only to prolong the suffering of a patient after the unsupported surgical attempts had failed. This anteroom period has passed and the men engaged in the various specialties realize that the perfection of the art of cancer therapy depends upon the cooperation of men and coordination of methods. The new approach to treatment of cancer is through a decision on which method or methods to use for any presenting case of tumor growth. The old way was to figure some way a case might be treated by surgery, and if inoperable it was therefore considered incurable, or the Radiologist might save his face by declaring as incurable a tumor which was only not suited for radiation therapy, although possibly operable. Had these same cases been viewed analytically the two methods might have been combined to produce a cured patient. Neither craft can conscientiously condemn the past life of the other.



Both are guilty of sins of omission and sins of commission.

A forceful presentation of the signs of the changing order was made by Doctor Bloodgood in a discussion at the 1934 meeting of the American Medical Association. To quote the Doctor in part:

"I do not think I have changed from surgery to radiotherapeutics except by the contemplation of facts. That report at my clinic told me that 49 per cent. of the patients previously operated on in the clinic now go to Dr. B and Dr. N for radiotherapy. This is based on results. They are not inoperable; they are still operable. They are not hopeless cases; they are still hopeful, but they get well under radiotherapy. This has happened during the last three years, not because I have changed any but because the method of radiotherapy has changed. A great change has taken place. First of all, radium and x-rays are no longer looked upon as a last resort. Dr. H. and I have lived through that phase of surgery when surgeons were looked on as a last resort. I never saw an appendix removed in Philadelphia when I was a student. I have lived through good surgery, and I am living in the time of good radiation."

Again he said: "I remember my reaction in the beginning to the statements of Pfahler. I did not believe a word he said, but I believe them now, because when I accumulated all the cases of jaw tumors that we had in forty years, Pfahler's name stood next to all the living patients who had irradiation. He was the beginning of Coutard's method. I have seen Coutard. I have sat next to him all day long and have seen cancer of the tonsils and of the base of the tongue after five, seven and ten years. I have seen the same thing happen in Baltimore. In cancer of the jaw I know that I have cured 10 per cent. of my cases by resecting, and the patients have lived for five years, but mighty few of them are alive after ten years. . . I have seen the results abroad. I saw cancer of the rectum with two great men in London. I am now seeing radiation replace surgery, certainly in the mouth. Of course, warts, skin lesions, and lesions everywhere that can be cut out can be taken off without any mutilation, with 100 per cent. results."

And again: "The radiotherapist has to be just as much a pathologist as the surgeon, and I don't know but that he will have to spend less time in anatomy and more time in pathology, because a pathologic point of view will give courage and direction to all who are treating cancer."

The last statement is an expression of the foundation of cancer therapy as an art and a warning to him who would be an artist. The world's masters in cancer therapy were and are fundamentally pathologists. Regaud was a cytologist whose researches in cell behavior led him into the study of various influences upon cancer cells and ultimately into cancer therapy.

In my own research into the value and technique of repercussion radiation the greatest gain has been in the study of cell metabolism and all chemistry.

When the cancer clinic or cancer therapist can get the triple vision for each patient of pathologist, surgeon and radiologist we will get more of the results we desire and less of the consequences we fear.

If we are to hold this work as an art we must look to more in our tabulation of results than eradicated cancers and living patients. We must consider not only the idea of a living patient but one who lives in peace and who is an acceptable member of an active and not overly sympathetic society. We are seeing every day patients who are living but at the cost of unnecessary and avoidable mutilations because the man who treated this patient was surrounded by specters of the past that kept him blind to the possibilities of modern methods of treatment. There are three anachronisms that seem to be the most difficult to subdue. These are the use of escharotic pastes with productions of wide tissue destruction, mutilating block dissection of the face and neck and operation on cancerous tumors without the aid of radiation.

Of these the most brutal and barbarous is the paste racket where patients are toled in for treatment with the idea that they are avoiding surgery.

Block dissections made in the hope that all lymphatic or cancer implanted tissue can be removed are becoming less frequent as they are replaced by supersaturation x-radiation and interstitial radium therapy.

The reports from cancer hospitals, the preaching of such teachers as Dr. Bloodgood and the accumulated figures showing the results of combined radiation and surgical treatment of cancerous tumor seem at times to be having but little effect upon the workings of the surgical mind as the radical breast amputation, resection of the lower lip and other tumor operations continue to be unattended by proper radiation.

The practice of cancer therapy cannot continue indefinitely in the unorganized manner in which it has existed in the past, scattered among the various branches of medical practice. It is rapidly becoming a definite phase of special practice and must be recognized as such, before we

can hope to appreciably lower the present ghastly death rate. This does not mean that the cancer therapist, or whatever he may ultimately be called, will be a law unto himself. Even as the general surgeon is dependent upon the internist, the radiologist, the pathologist, and other workers for his best results, so will the cancer therapist have to be dependent upon his fellow workers. Thus by centralizing responsibility, coordinating methods and directing treatment programs we shall be ready to ask for a name and a christening as an art and as a definite medical specialty.

### MEDICAL SURVEY IN MEDICINE.

E. A. KOMINIK, M.D.

CHICAGO ..

Medical survey, as a branch of medicine, is assuming an increasing significance. Health trends are reflected in and over greater areas and are involving an increasing number of people. Any survey of prevailing conditions ultimately depends in a great measure upon the general practitioner—the man actually in the field of medical problems. We look to him for the accuracy of diagnosis as to the cause of death. Surveys, hence, are delimited in value by the accuracy of diagnosis of physicians. The medical men of today are developing a conscious health trend of mind. This faculty can be shown to benefit, not only the community, but also the working facilities of the medical men themselves.

Statistical data may seem dry and uninteresting but nevertheless as figures are merely symbols representing the past experience of others, portrayal of these symbols in varying relationships will in the end enhance the progress of medicine.

Analysis of present health conditions and trends can greatly benefit programs for prevention of communicable disease. Surveys also serve the purpose of bringing to the laboratory the foundations for scientific investigation. An example of this is the newer data developed and brought to light by Arnold<sup>1</sup> concerning the physiological effects of the menstrual cycle. This investigation was stimulated, no doubt, by a sur-

vey of the trend of tuberculosis in the younger female age-groups.

In the survey appended herein, an attempt was made simply to determine the relative status of both the birth and death rate trends in the counties of the State of Illinois. Such factors as the inclusion of non-resident births and deaths, epidemics, corrections for delayed certificates, undoubtedly play a part in increasing or decreasing the various rates. Nevertheless, in the main, the survey portrays the general trend. The rates were obtained from the Department of Public Health bulletins, and of course are subject to the corrections for delayed certificates, as indicated in those bulletins.

Ten years of birth and death rates were studied, starting with the year 1924 and ending with the year 1933. An average of the birth rates and death rates was determined in two five year periods. The last five year period ended 1933 and the previous five year period ended with 1928. The average of the birth rates for the last five year period was then compared to the average of the previous five year period. The same was done for the death rates. It was thought that in this manner the counties could be placed upon a fairly equitable basis. We wish here to know *where* the trends of the births and deaths are rising or falling. If we know where, we can later find out, systematically in the same manner, *why* the rates are such. In this way this survey as a basis for an extensive study as to causative factors, serves a purpose.

Furthermore, an analysis concerning the cause of these trends will afford us a fairly comparative health index for all the counties in the State. It is to be hoped that at some time in the future, non-resident births and deaths may be placed in the current bulletins, so as to render as accurate as possible those rates under consideration; that is, if a county is to be judged fairly only the resident births and deaths should be considered. The U. S. Mortality Statistics have these rates dissected as such, but they are not as current as the bulletins.

*Birth Rates.* The average of the birth rates for the last five year period ended 1933, compared to the previous five year average reveals:

Ten counties or 9.9% of all the counties in the state had an *increase*.

Ninety-two counties or 91.1% of all the coun-

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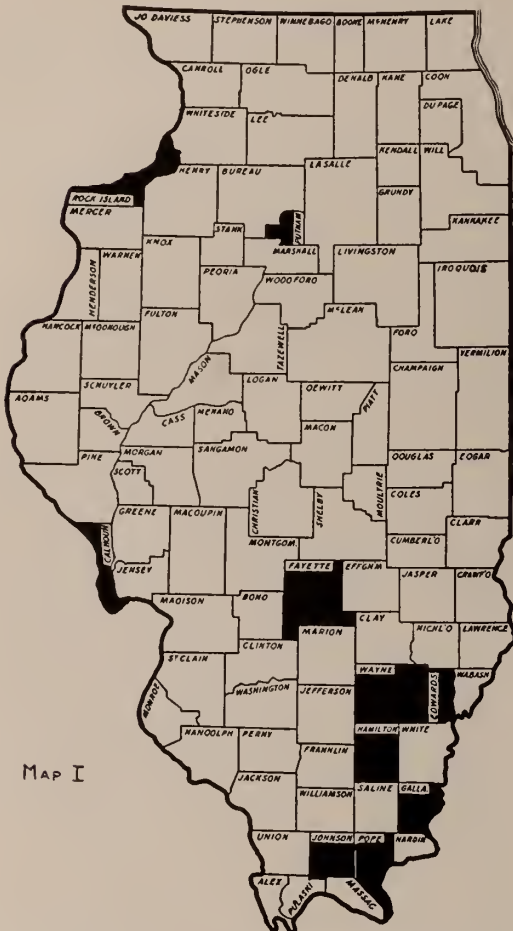
Read before Section on Public Health & Hygiene, Illinois State Medical Society, Rockford, May 23, 1935.



ties in the State had a *decrease* trend in birth rates. (See Map 1. Counties with increased

*Birth Rates and Death Rates.* The survey further revealed:

1. Fifty-five counties had a birth rate decrease with a corresponding death rate increase. (See Map 2. Counties in black.)



MAP I

Birth rate trend 1929-1933 average compared to 1924-1928 average.  
□ Declining birth rate.  
■ Increasing birth rate.

rate, shown in black; those with a *decrease* shown in white). Of the counties showing a birth rate increase, the percentage increase is as follows:

Calhoun .....	16.7%	Johnson .....	2.3%
Edwards .....	1.0%	Pope .....	2.2%
Fayette .....	1.2%	Putnam .....	3.9%
Gallatin .....	8.9%	Rock Island .....	9.6%
Hamilton .....	6.1%	Wayne .....	1.4%

*Death Rates.* The average of the death rates for the last five year period compared with the previous five year average reveals:

Sixty-four counties or 62.7% of all the counties had an *increase*.

Thirty-seven counties or 36.2% of all the counties had a *decrease*. One county—Stephen—maintained the same death rate average for the two five-year periods.



MAP II

Birth and death rate trend 1929-1933 average compared to 1924-1928 average. Counties in black had a birth rate decrease with a death rate increase.

2. Thirty-six counties had a decrease of both their birth and death rates. (See Map 3. Counties in black.)

Of the fifty-five counties whose birth rate declined and whose death rate increased, the distribution in the various sections of the State were as follows: (Map 2. Counties in black)—

*Northern Section:* 14 counties, representing 42.4% of all counties in the section.

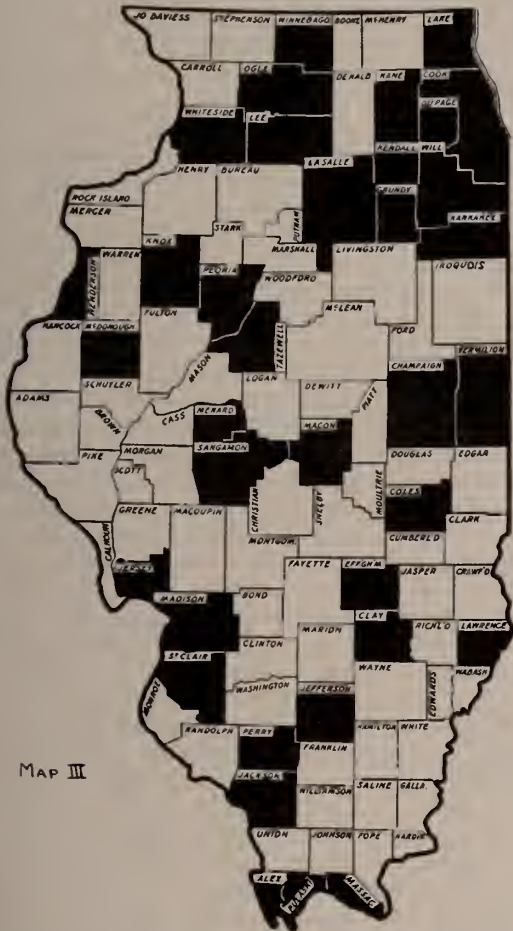
*Central Section:* 25 counties; representing 71.4% of all counties in the section.

*Southern Section:* 16 counties; representing 47% of all counties in the section.

Of these same 55 counties having a birth rate decrease with a corresponding death rate in-

crease, the percentage death rate increase in the last five year period over the preceding five year period is as follows:

- Counties having a death rate increase of 20% to 26%—Cass, Greene, Hardin, Macoupin, Stark.
- Counties having a death rate increase of 15%



Birth and death rate trend 1929-1933 average compared to 1924-1928 average. Counties in black had a decrease of both their birth and death rates.

- to 20%—Brown, Clark, Cumberland, Mason, Montgomery, Shelby.
- Counties having a death rate increase of 10% to 15%—Henry, Jasper, Marion, Moultrie, Pike, Scott.
- Counties having a death rate increase of 5%-10%.
- |           |            |          |
|-----------|------------|----------|
| Bureau    | Franklin   | Morgan   |
| Carroll   | Hancock    | Richland |
| Christian | Iroquois   | Schuyler |
| Crawford  | Jo Daviess | Union    |
| De Witt   | Logan      | Woodford |
| Ford      | Mercer     |          |
- Counties having a death rate increase of less than 5%:

- |         |            |            |
|---------|------------|------------|
| Adams   | Fulton     | Randolph   |
| Bond    | Livingston | Saline     |
| Boone   | McHenry    | Wabash     |
| Clinton | McLean     | Warren     |
| DeKalb  | Marshall   | Washington |
| Douglas | Monroe     | White      |
| Edgar   | Piatt      | Williamson |

For the above group of fifty-five counties, it can be seen that while the trend of death rates is on the increase, it has not reached any undue proportions.

Of the above 55 counties, the average birth rate decrease among them was as follows:

Counties having a birth rate decrease of 20%-25%:—Jo Daviess, Piatt, Williamson, Woodford.

- Counties having a birth rate decrease of 15%-20%:—Bond, DeKalb, DeWitt, Iroquois, Livingston, Macoupin, Randolph, Warren, Washington.
- Counties having a birth rate decrease of 10%-15%:
- |            |         |          |
|------------|---------|----------|
| Adams      | Douglas | Marshall |
| Carroll    | Hancock | Mercer   |
| Cass       | Logan   | Saline   |
| Christian  | McHenry | Stark    |
| Clinton    | McLean  | Union    |
| Cumberland | Marion  | Wabash   |

Counties having a birth rate decrease of 5%-10%. Bureau, Crawford, Edgar, Franklin, Fulton, Henry, Morgan, Moultrie, Pike, Scott.

Counties having a birth rate decrease of less than 5%:

- |        |            |          |
|--------|------------|----------|
| Boone  | Hardin     | Richland |
| Brown  | Jasper     | Schuyler |
| Clark  | Mason      | Shelby   |
| Ford   | Monroe     | White    |
| Greene | Montgomery |          |

One county—Putnam—showed a birth rate increase with a corresponding death rate decrease.

In all the counties with the exception of Morgan and Kendall, the averages of the birth rates for the last five year period, are well in excess of the death rate averages for the same period. In Morgan and Kendall counties the situation was as follows:

	Birth Rate Aver. (1933-1929)	Death Rate Aver. (1933-1929)	Birth Rate as a % of Death Rate
Morgan	16.22*	22.80*	71.1%
Kendall	6.76*	9.35*	72.2%

Conclusion. While the trend of the birth rate, for the most part seems to be on the decline, nevertheless the actual averages of birth rates for the last five years is substantially in excess of the death rate averages for the same period. Mor-

\*Rate per 1000 estimated population.



gan and Kendall counties were the only ones whose birth rate is actually below the respective death rates. Furthermore, counties in which the birth rate trend is on the decline, and the death rate trend is on the increase, lie mostly in the Central Section of the State. This probably indicates a trend toward a comparatively older population.

The above data assembled as it is, give us a fairly comparative basis or starting point for a comprehensive investigation into the relative health status of the various counties of the State. In pursuing a deeper investigation as to the causes of the trends, due allowance will be made for the various factors, mentioned before, which tend to influence the rates.

### REFERENCES.

1. Arnold, Lloyd: Tuberculosis in Girls and Young Women. Amer. Rev. of Tuberc., 28:262-266, 1933.

*Acknowledgments.* I wish to express my appreciation to Mr. B. K. Richardson of the State Department of Public Health for the many courtesies shown me in preparing this paper.

### DISCUSSION

Mr. B. K. Richardson, Springfield: This is a very interesting subject Dr. Kominik has discussed in his paper. I have been skating around on the surface of the statistical ice for ten or fifteen years now. I don't profess to be a statistician by any manner of means. In fact, I think it was Dr. Rankin, a former health commissioner of North Carolina, who had been quite prominent in public health matters for many years, who said that there were only two competent statisticians in the United States. He rather implied that perhaps he was one of them. There are very many complicating factors in every statistical study. It is very difficult to take the gross death rates or the gross birth rates and arrive at any very accurate conclusion as to the status of public health on that basis. The birth rate throughout the civilized world has been declining for about fifty years. That corresponds roughly with the advancement in the application of scientific knowledge to the prevention of disease. As methods of control over communicable diseases which affect chiefly the younger age groups have increased in effectiveness, the general age level of the population has risen and consequently there has been a trend towards a somewhat higher mortality in the upper age groups, with a coincident lowering of infant mortality and of childhood mortality. Wherever infant mortality has declined rather rapidly, the birth rate has gone down also. Just why the connection, I don't know. I have never seen anything in the literature that would tend to explain it. With an average span of life of about 60 years in a stable population, you would have a general mortality rate ultimately of about 17. So, in a large population in a State the size of Illinois, or in

any large population where the population is stable, and where you have brought the death rate down to around 10 or 12, you are bound to have ultimately an increase in the death rate until we reach around 16 or 17. So, a tendency towards an increased death rate in counties in Illinois or in the State at large would not necessarily reflect poor health conditions. In these counties which Dr. Kominik shows had experience some rise in mortality during the last five years, I believe that a closer study would show that a good many of those are counties with the best prevailing health conditions.

In reference to variations in the birth rate, we made a study, a rather superficial study, a few weeks ago in relation to the economic status as indicated by the proportion of people on relief, and we couldn't find any relation to speak of. If we took the twenty or thirty counties in a group which were highest on the relief rolls in general the birth rate was a little higher than it was in the State at large or in the counties lowest on the relief rolls, but a close analysis showed that wasn't universal by any manner of means.

In Winnebago county, for example, there was at the end of last year a rather high proportion of people on relief; about 20 per cent. At the same time this county had one of the lowest birth rates in the State and also had a very low death rate. Calhoun county, which had one of the highest birth rates in the States, was in the second class from the top on the relief rolls. So, it didn't work either way.

Economical conditions don't seem to be altogether responsible for this variation in the birth rate, and it is quite a difficult thing to determine just what the factors involved are. However, since 1922 the general birth rate in the State has tended downward, as it has throughout the entire world. It appears to have reached the bottom, however, in 1933. In 1934 it rose some. So far this year it appears to be considerably higher than it was even in 1934.

About a year ago we made an analysis of the mortality from heart disease by counties in Illinois. We found that the counties with the highest rates were rather widely distributed throughout the State. We rather thought that the age level in the southern part of the State was higher than it was up in the northern part because that territory down there has been settled for a good deal longer period of time than it has in the northern end of the State and even in the central part of the State. Upon an analysis, however, we found that the mortality from heart disease correlated exactly with the age level of population, regardless of the location of the population. Whether it was in the southern part, the central part or the northern part, there was a direct relation. Where the mortality from heart disease is high, you have a high age level of your population. So that I think that Dr. Kominik's conclusion that trends towards higher death rates in a large number of counties are probably correlated with the increasing age level of the population.

He mentioned Morgan county as having a higher mortality than birth rate. I think that is explained entirely by the location there of one of the largest

State hospitals in the State with a relatively small population in the county. We have studied the situation from year to year and find that if the State hospital population is eliminated from consideration, they have in Morgan County quite a normal death rate and quite a normal birth rate as compared with the rest of the State.

Just what influences are at work in Kendall county, I don't know. We have been very much interested in that county. I rather suspect, however, that there is a hospital or some institution very close to the border but located in another county. It is a small county and they persistently have a higher death rate from year to year than a birth rate. With a small county a relatively few deaths, perhaps ten or fifteen deaths, that occur outside the county would change entirely the picture of the death rate in that county. I think that that same explanation would probably apply to a number of other counties in the State. It has always shown up very clearly in reference to municipalities. In Moline, you have a much higher birth rate on the face of gross returns that you have in Rock Island or East Moline. That is explained by the fact that a maternity hospital is located in Moline, just across the boundary line between Moline and Rock Island, which is all one community. A good many maternity cases are taken care of from Rock Island. When those are classified according to residence the whole community has quite a normal birth rate and quite a normal death rate.

Those factors come into play always in taking gross mortality and gross birth rates for determining trends in health conditions.

I want to compliment Dr. Kominik on this paper.

Dr. N. O. Gunderson, Rock Island: I would like to ask whether it is going to be possible eventually to allocate these births to the proper place so as to give us a true birth rate.

Dr. John J. McShane, Springfield: In reference to Mr. Richardson's statement regarding birth rates, I might state that the same thing applies to Moline as applies to Cicero. Cicero has no hospital within the city limits and many maternity cases go to the hospitals in Oak Park, and these births are credited to Oak Park due to the fact that the birth occurred in the Oak Park registration district.

In studying birth statistics it was noted that the Cicero birth rate was not as other cities and upon making inquiry we learned that a number of births that should have been credited to Cicero, had the baby been born in Cicero, was credited to Oak Park, due to the fact that the mothers, as I stated previously, went to maternity hospitals in that city.

Dr. John J. McShane, Springfield: I have talked to Mr. Howard about this matter, and I hope in the near future we will be able to allocate deaths to the place of residence. In Springfield or any city where there are superior hospital facilities, many cases of communicable diseases are hospitalized. In Chicago many cases are brought to the Cook County and other contagious disease hospitals from outside the city, and if these cases die in the hospital in Chicago, they are charged to the city of Chicago. The same applies in

Springfield. Each case of typhoid fever is hospitalized in our local hospitals, and if a death occurs the death is charged to the city of Springfield, whereas it should be charged to the place of residence. We hope that this situation will be taken care of in the near future, as these deaths really should be charged to the township, village or city in which the patient lives.

In New York State, if a man dies in Buffalo and he resides in New York City, his death is charged to New York City, and if a person dies in New York City and he lives in Albany, his death is charged back to his home city.

As I said in the beginning, I hope in the near future we will be able to allocate deaths to the place of residence. When we do we will have more accurate statistics regarding deaths that occur from communicable and other diseases.

Dr. Kominik (in closing): One of the largest factors in the reflection of the birth and death trends is due to the fact that there is no proper accrediting of births and deaths in the various localities. When that is corrected the trends will reflect more closely conditions as they exist in various localities.

## VITAMIN REQUIREMENTS IN PREGNANCY

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The relationship of the vitamins to the reproductive function has assumed a more and more important position as their importance in the problems of nutrition has become better understood. There is still much which we do not understand and the fact that no method has been devised for the estimation of the amount of any given vitamin in various foods places us somewhat at a disadvantage in determining the relative values of food. The exact quantitative vitamin requirements of the animal organism also cannot be stated.

The very small quantities of vitamins which are needed to produce the changes which are caused by them causes us to believe that they function as catalysts of the chemical processes of the body rather than as the materials from which molecular structure is built up. This suggests that, beyond the amount of vitamin needed to catalyze the chemical process, the ingestion of larger amounts is of little value. It is probable that the value of the use of large amounts of vitamin containing substances has been over-rated.



In discussing the vitamins which are especially important to the reproductive function it should also be borne in mind, in addition to those which are particularly useful in various specific ways to the process of reproduction, that the organism as a whole must be considered, as a condition of vigorous health is essential to the most efficient carrying out of the reproductive process. The obstetrician must consider the vitamin requirements of his patients not only from the standpoint of the pregnant woman but also from that of the child. There is a relationship between vitamin requirements and lactation. In at least some of the large number of cases of sterility with which the gynecologist and obstetrician has to deal the question of a possible lack of certain vitamins arises. While much yet remains to be made clear certain relationships between the vitamins and the process of reproduction seem well established. A proper appreciation of such information as is at present available concerning the influence of vitamins upon sterility, pregnancy and lactation, appears to have been added to the duties of the obstetrician and gynecologist.

The frequent cases of sterility with which we have to deal tax our therapeutic resources and often we fail to produce the greatly desired result. Every case of sterility requires a careful study of both members of the family for the experience of many observers indicates that about 40% of sterilities are due to abnormalities in the male. The vitamins which are of particular importance from the standpoint of sterility are A and E. At least in experimental animals changes in the reproductive system due to deficiency in vitamin A have been demonstrated. Epithelial changes in the reproductive system are found. In the male, as a result of keratinization of the germinal epithelium, spermatogenesis is retarded or inhibited. Male sterility may therefore result but if the deficiency in vitamin A is overcome regeneration occurs and normal sperms may be produced. This may require from five to thirteen weeks. In the female, sterility is probably due to failure of the ovum properly to implant itself upon the uterine lining. This also may be corrected by the giving of vitamin A containing foods or substances. There appears to be evidence which justifies us in believing that an adequate vitamin A supply is needed during

lactation. If the mother's diet does not contain an adequate supply, measures should be taken to provide an additional amount. It may be obtained from cream and butter and is also present in haliver oil.

Vitamin A is soluble in mineral oil and the amount which the body obtains may therefore be materially decreased if it is being taken as mineral oil is insoluble. When mineral oil preparations are being used regularly the influence of their frequent or constant presence in the alimentary tract upon vitamin absorption must be considered. Deficiency of vitamin A appears responsible for certain changes in mucous membranes and perhaps for lowered resistance to some infections. This may interest us as obstetricians as any respiratory infection in a pregnant woman is rather more of a source of anxiety than in the non-pregnant. Renal calculi will develop in experimental animals if an obstruction to urinary outflow exists and changes in the renal epithelium may be seen. This again is of importance in the field of obstetrics as infections of the pelvis of the kidney are troublesome and sometimes serious complications of pregnancy.

Vitamin E has an important relationship to sterility. It has a very definite effect upon the causation of sterility which caused it to be discovered. In experimental animals it is found that, when vitamin E is absent, in female animals resorption of the embryos occurred, although no demonstrable changes in the reproductive organs took place. The entire effect of lack of this vitamin in the female appears to be upon the product of conception rather than upon the mother. This is susceptible of correction in the female by the administration of vitamin E containing substances. In the male there is a degeneration of the germinal epithelium. These changes cannot be restored if the process has gone on to any extent. This is contrast to male sterility resulting from deficiency of vitamin A in which restoration may take place after supplying the deficient vitamin, provided infection following the degeneration of the epithelium has not caused too great destruction. A greater amount of vitamin E is needed by the male to prevent the tissue changes which cause sterility than is needed by the female to prevent the absorption of embryos. When the degenerative changes in the reproductive system of the

male have reached a stage from which functional recovery is no longer possible the secondary sex characteristics are not lost. It would appear, therefore, that the male sex hormone is not secreted by the germinal epithelium.

In the female, ovulation will proceed normally in the absence of the vitamin and the cell structure of the ovary appears unimpaired. The sterility results from the fact that the embryos cannot survive in the absence of vitamin E and are resorbed. Development proceeds up to the stage of the blastodermic vesicle and, up to this point, development goes on without the vitamin. Death and resorption of the embryo follows and this may be prevented by the administration of vitamin E at or before this time. As one large dose may cause the pregnancy to continue normally it would appear that the vitamin is stored within the body.

Evans and Burr have described a paralysis of the limbs in the young of experimental animals whose diets were merely sufficient to complete pregnancy and which were deficient in vitamin E during lactation.

It has been rather clearly shown therefore that in laboratory animals belonging to the class of small rodents, vitamin E is definitely necessary in the process of reproduction and that its absence in lactating mothers is productive of changes in the nervous system of the young. These paralyzes in the young may be prevented if vitamin E is present in the mother's diet which indicates that it passes to the young in the milk. In view of these facts it has been assumed that vitamin E deficiency may play a part in certain cases of human sterility and that administration of vitamin E is indicated. This vitamin is now obtainable commercially in the form of preparations of wheat germ oil. Proof is still lacking of the value of this form of therapy in habitual abortion in human beings, but, as the administration of vitamin E is wholly innocuous, it seems wise to try it in such cases until experience shows whether results may be obtained in habitual abortion and in human sterility which are comparable to those attained in animals. It is at least well worth trying in view of the rather definite experimental findings. The treatment of sterility is still discouraging as the most painstaking work with these cases yields but a modest number of pregnancies. Anything which gives promise of im-

provement in our results should be seriously considered. To determine whether vitamin deficiency causes structural changes in the mammary glands which would influence lactation. Urner studied the effect of deprivation of vitamin E upon the mammary glands of the pregnant rat. No specific histologic change was noted. The involuntary changes are probably due to the destruction of the product of conception.

Vitamin D influences growth both in laboratory animals and man. Lack of this vitamin results in deficient calcification causing the production of soft fragile bony structure. The bony changes are most marked at the epiphyses. Hess and Weinstock have shown that the administration of vitamin D during pregnancy does not protect the infant against the development of rickets after birth. The management of rickets after birth is a paediatric problem. Vitamin D exerts a definite effect upon calcium and phosphorous absorption and for this reason an adequate supply should be provided for the pregnant woman. In warm weather simple exposure to the sun provides an efficient and inexpensive method of providing the needed vitamin from her own tissues, but in winter, particularly in the colder parts of the country the administration of viosterol is of great value and particularly if combined with calcium and phosphorous. The diphosphate of calcium is a useful source of both these substances. Richardson believes that viosterol is of value during pregnancy for the relief of tetany. This is probably because of its effect upon calcium metabolism. It is clinically demonstrable that the muscular pains of which the pregnant woman frequently complains are often relieved by the administration of calcium. A proper supply of vitamin D is important to the pregnant woman and care should be taken, especially when exposure to sunlight is limited, to supply the needed vitamin artificially.

It is probable that vitamin D exercises a marked effect upon calcium and phosphorus metabolism. This function may have an important bearing upon osseous development of the infant in utero and some workers believe that it aids in maintaining tooth structure. Whether it influences the teeth or not, the fact of its infant in utero and some workers believe that it lism seems established. As both of these minerals



are of importance to the pregnant woman and nursing mother the value of an adequate supply of vitamin D seems apparent.

It has been recognized for centuries that men deprived of fruits and green vegetables, and restricted to meat, particularly salt meat and dry foods, would develop scurvy and that fruit juices and fresh vegetables would produce a rapid cure. This disorder we know now to be due to a lack of vitamin C and its rapid relief to the fact that this vitamin is contained in fruits and vegetables. Canker sores and some dental lesions are apparently allied to the more serious condition known as scurvy. Dental caries progresses more rapidly during pregnancy than at other times. This process, and inflammatory conditions such as gingivitis, are apparently benefited by the use of vitamin C. This may be obtained in orange juice, lemon juice, fresh tomatoes and green leaf vegetables taken raw such as lettuce and cabbage. We have for some years tried to have our private obstetric patients follow this plan and believe that we have been able to decrease dental caries. Milk contains a considerable amount of vitamin C immediately after obtaining it from the cow but probably but little by the time the milk reaches the consumer. It is therefore not an adequate source of this vitamin. Vitamin C is probably easily destroyed and the foods containing it must be taken in generous amounts. Hanke, who studied the effects of the administration of citrus fruit juices upon the gingivitis and dental caries of children, recommended a pint of orange juice and the juice of one lemon per day. He states, however, that the amounts needed to exercise a curative effect are larger than those needed to maintain an existing state of health. A tumbler, which is about six ounces of orange juice and a generous diet of lettuce daily seems to be sufficient to maintain a state of dental health. Fortunately orange juice can be taken by most people daily for indefinite lengths of time without its palling upon them. Urner gives an excellent summary of the influence of the action of the vitamins during pregnancy and lactation and I shall quote from him:

*Vitamin A* affects the fertility of the experimental animal even when deprivation is moderate. It may affect the development of the embryo if the deprivation is severe. It is of importance in maintaining resistance to infection. Whether this protective effect extends to puerperal sepsis is questionable.

*Vitamin B* is needed for ovulation in the experimental animal. Male sterility caused by degenerative changes in the germinal epithelium has been noted in experimental animals deprived of this vitamin. Vitamin B and its component, G, are needed for lactation and adequate amounts are essential.

*Vitamin C* is needed for successful continuation of pregnancy to term in experimental animals. When inadequate amounts are provided scurvy results. To this is probably related gingivitis and possibly dental caries, both of which appear to be beneficially affected by the use of vitamin C. Vitamin E is required for the proper development of the embryo and is also needed for the proper nutrition of the suckling young. An increased amount is needed during lactation.

Vitamin requirements can, for the most part, be supplied through the diet. The provision of a well balanced dietary is an important part of proper pre-natal care.

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## THE TRACHOMA SITUATION IN SOUTHERN ILLINOIS

H. S. GRADLE, A. F. LENZEN AND A. M. HAYDEN  
CHICAGO

During the early part of the preceding century, settlers from the Eastern Seaboard migrated westward to what was then called the Western Province of Virginia. They settled around the junction of the Ohio and the Mississippi Rivers and spread out into the hills of Kentucky and on to the plains of Missouri and Illinois. The descendants of these early settlers still form the main portion of the population of this territory, as the foreign emigration passed this part of the country by. When trachoma first made its appearance in this area is unknown, but ophthalmologists have known of the existence of the disease there for at least forty-five years. The late Dr. Stucky started the campaign in the Kentucky hills and his early efforts are being carried on in the endeavor to control the scourge there. In Missouri, the United States Public Health Service is fighting the disease and apparently gaining the upper hand.

In Illinois, trachoma is fairly well confined to the southern fourteen counties of the state. How many cases there are cannot even be conjectured for no comprehensive survey has ever been made. In four of the countries, the Illi-

Illinois Society for the Prevention of Blindness made two surveys, spaced ten years apart, and found that the number of cases had not decreased in the single decade. No effort, either private or governmental, had ever been made to alleviate the conditions there or to prevent the spread of the disease, and it was rather evident that the wave of trachoma was advancing slowly toward the north. There were no Eye Clinics in the southern end of the state and a few of the worst cases were sent to the Eye and Ear Infirmary in Chicago, a most unsatisfactory method of procedure, on account of the distance of that Institution from the trachoma regions and the consequent homesickness of the patients.

particularly through the Illinois Eye and Ear Infirmary, contributed their quota of work, and on June 18, 1934, the Governor Horner Trachoma Clinics were opened. At this time, the Illinois Emergency Relief Commission was functioning and, due to the splendid cooperation of this body, some of the nurses and nearly all of the non-technical personnel connected with clinics were furnished as a relief project.

Reference to the accompanying map will furnish a geographical concept of the territory covered, and of the counties that were served by the Clinics. Out-patient Clinics were started in Harrisburg, Shawneetown, Marion and Jonesboro. Space was provided by the local authorities in the public libraries or the courthouse, so that each Clinic had a waiting room, a treatment room and an operating room. Uniform equipment was placed in each Clinic so that the personnel could function smoothly in any one of the four locations. Two nurses were assigned to the two eastern clinics and two nurses to the two western clinics, all under the supervision of Dr. Lenzen. Each clinic was operated for one full day each week, with the physicians and three nurses on duty, and for one-half day with the same personnel, and for one-half day with only one nurse. The remaining time of the nurses was spent in treatments and home visits. In addition to the medical personnel, each clinic had the service of stenographers, social service workers, janitors, and scrubwomen. Operations were performed in the Clinics on given days by appointment.

But little publicity was required, for news of the establishment of the clinics spread rapidly by word of mouth and the clinics were soon operating at capacity. Each new case was questioned very carefully, not only as to medical history, but also in regard to the social status. Great care was exercised not to accept patients who were under the care of private physicians or patients whose financial condition was such that they could engage the services of a private physician. Of course, only cases with trachoma were accepted for treatment. All others who reported to the clinics were examined carefully and either released as non-trachomatous, or else listed as trachoma suspects and re-examined at a future date. Surveys were made of several of the schools as possible nests of infection and all children with trachoma were referred to the



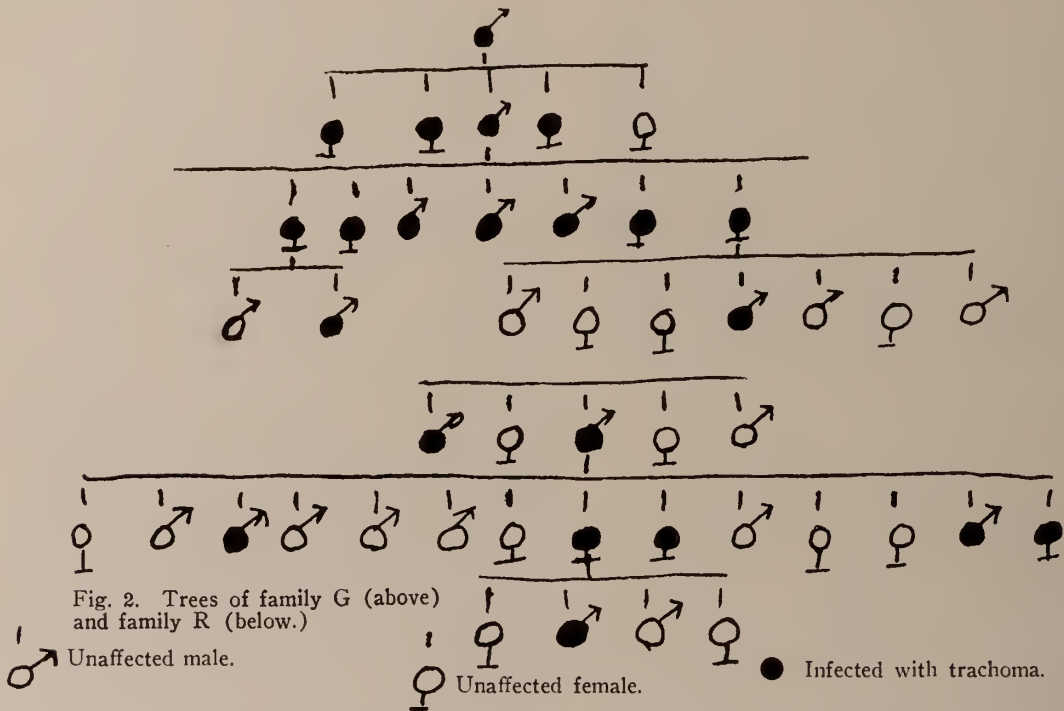
Fig. 1. State of Illinois showing location of clinics.

These facts were laid before Governor Horner shortly after his inauguration and he took immediate steps to finance a campaign for the control of trachoma in the southern counties. The Illinois Society for the Prevention of Blindness contributed most generously, both in money and personnel. The State Board of Health and the Department of Public Welfare,



clinics for treatment. Careful records, both medical and social, were kept in every case and this paper is based upon an analysis of those

Four hundred and ninety-seven of these patients had had previous treatment elsewhere. It was not only of interest, but also of great



records. The period of this report covers from June 18, 1934 to June 18, 1935.

importance to determine the number of members of each household from which a patient came, who were afflicted with trachoma.

Total number of Positive cases of Trachoma was 933. Of these, 549 were males and 384 were females.

The ages of the patients were as follows:

From 1 to 9 years inclusive.....	98
From 10 to 19 years inclusive.....	151
From 20 to 29 years inclusive.....	90
From 30 to 39 years inclusive.....	76
From 40 to 49 years inclusive.....	152
From 50 to 59 years inclusive.....	164
From 60 to 69 years inclusive.....	115
From 70 to 79 years inclusive.....	73
From 80 to 89 years inclusive.....	14

Total ..... 933

The length of time that the condition has existed in each case previous to admission is of import, both from the preventive standpoint as well as the therapeutic. From such information, the word of the patient had to be relied upon and as nearly as could be estimated, the following condition pertained:

Trachoma present for one month or less.....	92 eyes
Trachoma present for two to six months inclusive..	82 eyes
Trachoma present for seven to twelve months inclusive .....	130 eyes
Trachoma present for more than twelve months.....	1,298 eyes
No record of length of time condition existed.....	264 eyes
Total .....	1,866 eyes

- In 631 cases, the patient was the only member of the household affected.
- In 169 cases, two members of the household were affected.
- In 81 cases, three members of the household were affected.
- In 31 cases, four members of the household were affected.
- In 9 cases, five members of the household were affected.
- In 6 cases, six members of the household were affected.
- In 6 cases, eight members of the household were affected.

In this connection, it may be of interest to reproduce two family trees, showing the number of cases of trachoma through the different generations.

In order to simplify the keeping of records, we classified the condition of the trachomatous conjunctivae as

Stage 1. Acute—succulent—purulent—follicular—granular.

Stage 2. Hypertrophic—hyperemic.

Stage 3. Beginning scar formation with chronic inflammation.

Stage 4. Quiescent scarred condition.

It was of course, impossible to classify each case accurately, as one stage is apt to overlap into another, but holding to the classification as

accurately as possible, the following was found on admission:

Stage 1 .....	834 eyes
Stage 2 .....	94 eyes
Stage 3 .....	55 eyes
Stage 4 .....	795 eyes
Unilateral Trachoma .....	24 eyes
No record .....	64 eyes

Total ..... 1,866 eyes

The fact that the disease had existed for such a long time in so many of the cases was responsible for the large number of complications that were found, upon admission.

Trichiasis existed in.....	483 eyes
Entropion was present in.....	225 eyes
Pannus had formed in.....	905 eyes
Active corneal ulcers were present in.....	35 eyes
Corneal scars were present in.....	441 eyes

Total complications ..... 2,089

Inasmuch as the preventive phase of the work was to be emphasized as well as the therapeutic, it was of import to have as accurate a record as possible of the visual acuity upon admission to the clinics as well as upon completion of the treatment. All visual acuities were measured at a twenty-foot distance with a standard test chart and minimum illumination of seven foot candles.

Vision of 20/20 .....	565 eyes
Vision of 20/30 to 20/40 inclusive .....	293 eyes
Vision of 20/50 to 20/60 inclusive.....	118 eyes
Vision of 20/70 to 20/100 inclusive.....	291 eyes
Vision of 20/200 .....	143 eyes
Vision of less than 20/200.....	375 eyes
Impossible to obtain vision.....	45 eyes
Amaurosis .....	36 eyes

Total ..... 1,866 eyes

It should be noted that the number of eyes with vision of less than 20/200 and amaurotic eyes total 411, or *exactly* 22% of the total.

Nine hundred and thirty-three patients were diagnosed as trachomatous during the year covered by these records. Of that number, 12 were referred to private physicians because of their economic status and were given no treatment in the clinics. Three were too ill to come to the clinics after the first visit and were not seen again. In one case, both eyes had been enucleated and the conjunctivae were such that no treatment was advised. That left 917 patients that were given treatment of which there were ten main types. The greatest reliance was placed upon chalmoogra oil massage, but in some it was combined with the use of other medication. A few cases were treated with quinine bisulphate alone and in some it was

combined with zinc ionization. Others were treated with glass rod massage. Every patient was given a 1-5000 aqueous solution of oxycyanide of mercury to use as an eyewash two or three times daily at home in addition to the treatments given in the clinic. Considerable stress was laid upon that as a preventive of secondary infection. To summarize, the 12,092 treatments that were given in the clinic were divided as follows:

	Patients
Chalmoogra massage alone.....	474
Chalmoogra massage plus Quinine Bisulphate .....	33
Chalmoogra massage plus Quinine Bisulphate plus Zinc ionization .....	3
Chalmoogra massage plus Zinc ionization.....	14
Quinine Bisulphate alone.....	11
Oxycyanide of Mercury alone.....	346
Glass rod massage.....	6
Finger massage .....	1
Copper Sulphate .....	1
Mixed Treatment .....	28
Total .....	971

The maximum number of treatments given any one patient was 115. No reference will be made here to the comparative value of the various forms of treatment as that will form the basis of another paper of a non-statistical nature.

Operations were performed in the various clinics as requisite, using both local and general anesthesia, as follows:

Expression .....	112 eyes
Modified Ewing .....	69 eyes
Hotz .....	39 eyes
Canthoplasty .....	46 eyes
Cautery puncture .....	30 eyes
Spencer-Watson .....	5 eyes
Gaillard Suture .....	11 eyes
Grattage .....	44 eyes
Lip graft .....	3 eyes
Diathermy Peritomy .....	10 eyes
Electrolysis of lashes.....	11 eyes
Pterygium .....	14 eyes
Chalazion .....	11 eyes
Tear sac Extirpation.....	1 eye
Excision of Scar Tissue.....	1 eye
Sling Suture of Outer Canthus.....	1 eye
Excision of Multiple Calculi.....	10 eyes
Tear Sac Puncture.....	1 eye
Incomplete Expression .....	9 eyes
Entropion .....	1 eye
Excision of Sebaceous Cyst.....	3 eyes
Cilia Removed .....	1 eye
Plastic Operation on Canthus.....	1 eye
Plastic Operation .....	1 eye
Forcible Dilatation of tear passages.....	1 eye

Total operations ..... 436

The final vision was recorded in 478 cases. Accepting the viewpoint that vision of 20/50 or better is required for satisfactory reading ability and that 20/200 or better is required for ordinary labor, the improvements in vision that



followed treatment may be classified as follows:

Vision became worse during treatment.....48 eyes or 5.02%  
 Vision improved from less than 20/50 to  
 20/50 or better.....96 eyes or 10.04%  
 Vision improved from 20/200 or less to be-  
 tween 20/60 and 20/200.....67 eyes or 7.00%

The economic status of the patients is a matter of more than passing interest and according to the best information possible, the new patients at the clinic for the past year fell into the following classes:

486 were on relief, of which number  
 465 were getting relief from the I. E. R. C.  
 10 were in C. C. C. camps or supported by someone  
 in camps.  
 6 were on the Blind Pension Roll.  
 5 were receiving War Pensions.  
 284 were self supporting.  
 45 were subsisting on farms, but without any ready cash.  
 12 refused information as to their means.  
 15 had no income and were living with relatives.  
 91 were in the unclassified list.

In the self-supporting group of 284, the average weekly income for the family was \$10.05, the maximum being \$26.00. The size of that average family was 4.63 individuals, which yielded an average individual weekly income of \$2.17. In this connection, it might be of interest to note that the Blind Pension Roll of the fourteen Counties that are served by these clinics contains 615 names. Inasmuch as the statistics of the Blind Pension are of no value from the scientific standpoint, it is impossible to say how many of these cases are blind due to trachoma.

The territory served by these clinics is distinctly rural, with scattered small towns. It was found that of the 933 patients seen in the first year of the clinics, 183 lived in the communities where the clinics were held. The remainder lived at varying distances away, the average being 16.1 miles and the maximum 56 miles. Thus the transportation problem for these patients is a serious one. Many are hauled in by friends. Some come in buses that the I.E.R.C. operate. The majority hitch-hike or walk. For example, one family with four trachomatous members, lived 22 miles away from the nearest clinic. A— of that family came for 32 treatments, B for three operations, C for 45 treatments and D for 54 and every mile of that distance was covered on foot. Innumerable such examples are available, but do not lend themselves to any statistical analysis.

*Summary.* On June 18, 1934, four out-pa-

tient clinics for the care of indigent sufferers from trachoma were opened across the southern end of Illinois. These were made possible through the understanding and generosity of Governor Henry Horner.

During the first year, 933 cases of trachoma were diagnosed. Four hundred and fifteen of these cases were under 40 years of age, indicating the necessity for a long-continued campaign.

Of the 1,866 eyes seen, the condition had existed for one year or less in 304 eyes, the remainder being more than a year old.

In 302 cases, more than one member of the household had trachoma.

The number of eyes in the various stages of the disease and the complications that existed upon the admission are enumerated.

Twenty-two per cent. of the total number of eyes had less than 20/200 vision.

The methods of treatment and the total number of treatments are analyzed, but without discussing end results.

The visual end results of 478 cases with completed records were analyzed with the finding that 5.02% of the eyes lost some vision despite treatments; 10.04% of the eyes improved to 20/50 or better; and 7.00% of the eyes improved to 20/200 or better.

Only 329 of the patients were self-supporting and the remainder were dependent upon some form of charity. The average income of the self-supporting patients was \$10.05 per week for the entire family that averaged 4.63 individuals.

## FIRST AID IN EYE INJURIES

THOMAS D. ALLEN, M.D.

CHICAGO

Inasmuch as the most efficient first aid is prophylaxis, with your indulgence we will not limit our discussion wholly to treatment of injuries already sustained.

Some 16 months ago several of us Chicago Eye Physicians cooperated to produce an exhibit for the American Medical Association Convention on this same subject. Some of the same features were used this past summer in a second exhibit. It is the ideas of these exhibits that I wish to bring before you tonight. Dr. Glen. Nethercut is cooperating with me at this time by

(Read before the Chicago Medical Society October 30, 1935, in symposium on iritis.)

bringing to your attention the essential features of these exhibits.

The subject is most easily handled by dividing it into age groups.

In the first place malformations and prenatal disease can be reduced to a minimum by careful check of both mother and father before conception. If both are healthy, and if the mother remains healthy during pregnancy, there will be little chance of congenital or prenatal disease or injury.

During delivery accidents happen to eyes. Forceps, fingers and pus are the main offenders. If the delivery is preceded by thorough cleansing little need we fear pus. Still if silver nitrate is used *à la* Credé no harm results and there is established a habit which has been known to save many eyes. Credé's treatment may cause a swelling and discharge for a day or two, but this is seldom severe, and almost never lasts over two days.

Forceps can press upon an eye and cause slight or severe injury, from a small subconjunctival hemorrhage to rupture of the eyeball. The finger or gauze may be drawn across the face in such a way as to open the lids and even scrape the cornea. Thorough cleansing with the mildest of antiseptics such as half saturated boric acid solution, repeated as necessary but not too frequently, is probably the most satisfactory treatment. It must be remembered that the eye, especially that of an infant, is a most delicate structure, and it should be handled with proper regard. Ordinarily it is not necessary to use large instruments to evert the lids or reach every cranny of the conjunctival sac. Instrumentation is harmful, and unless it is definitely indicated, it is inadvisable.

When trauma to the eye has occurred, thorough examination is indicated. To view the palpebral conjunctiva one need only pull the lids apart with the two thumbs. Should the skin be slippery a bit of gauze over the thumbs suffices. A simple manipulation of the thumb on the lower lid, pressing slightly on the eyeball will push the eyeball back into the orbit and the conjunctival fornices will be pushed outward into view and can be treated with an albuminate of silver or boric irrigation (a soft tipped rubber ear syringe is ideal for this).

The cornea in both these manipulations will be covered. In order to expose it, it is necessary to start again. We use a small Desmarre's lid

retractor for the upper lid and the thumb on the lower lid. Under these conditions 1% or 2% sol. of Potassium fluorescein may be instilled and washed out, to demonstrate defects in the corneal epithelium.

Of course, in all these manipulations the hands and all instruments touching the eye must be aseptic, as post partum infection may occur. The mother must be instructed in this technique.

Should conjunctivitis occur, a smear and a culture should be taken at once, and if positive for Neisserian, the case should be taken to a hospital where special attention is given to the treatment, e.g. Cook County Hospital. This treatment does not properly fall into our discussion, as it is not strictly first aid. If the infection is not Neisserian, mild antiseptics are best unless corneal complications occur. Consultation is always in order.

When the child begins to creep there should be a special pen for him with a special floor free from the dust and dirt from the shoes of older children and adults, until the baby can be taught not to get his fingers into his eyes. But it is remarkable without these contrivances how little infection takes place. This is due to the anatomical arrangement of the lids and the character and course of the tears. Should sand or other foreign body get into the eye, pull the upper lid over the lower; this may dislodge the foreign body or start the tears which may wash it out. This failing, irrigate with boric acid. The trick lies in holding the child properly. His head should be steadied between the doctor's knees, and the body of the child should be on the nurse's or mother's lap; the legs held by the nurse's elbows and arms, and the hands by the nurse's hands.

Of course sharp toys (scissors, ice picks, knives, needles, pins, darts, etc.) will not purposely be left in the child's path. But if his eye is injured, it may be washed only with *sterile* boric acid solution. Should this not be available do *not* substitute. Merely apply a clean bandage and call an eye physician. Too little attention is better than too much. Should an eye physician not be available, the eye should be handled by a surgeon under the most aseptic conditions available.

Recently I have seen several examples of that most heart-rending accident prevalent among school children, a bent pin, or a bit of broken copper wire penetrating the cornea. These had



been shot by rubber bands; in each case, the cornea and lens were penetrated, cataract naturally resulting. Infection often follows. First aid treatment consists in removing the foreign body, applying a mild antiseptic ointment, such as 1:3000 bichloride of mercury, between the lids and covering the eye with a light aseptic dressing. The subsequent care of such a case is often prolonged and complicated; again consultation is in order.

In adults foreign bodies may require first aid treatment. If a cinder lodges under the upper lid, it is usually easily removed with a sterile applicator moistened with boric acid. Have the patient open both eyes, look down, and refrain from raising his eyebrows. Take the eyelashes of the upper lid with thumb and first finger, pull the lid away from the eye, press gently with a pencil or the reverse end of the applicator on the center of the upper lid, and simultaneously lift the eyelashes and press them gently against the eye. A cinder on the cornea is not so easily removed. The eye must be anesthetized. Panto-caine 0.5% to 1% is the most popular anesthetic at present. Two drops at an interval of two minutes will usually be sufficient to allow the application of a spud. A spot light is necessary. The technique should be acquired by personal instruction from a competent man.

Automobile accidents are increasing, and although safety glass is now fairly standard we do have many eyelids torn. These should be accurately repaired at once if the eye itself is not badly damaged, or if an eye physician is not available within a few hours. Otherwise a boric acid dressing is proper.

Should there be a penetrating wound, an x-ray should always be made. Even glass may cast a shadow (if it has enough lead in it). Dr. Wilder always made it a practice to fasten a spicule of the glass suspected of being in the eye, to the side of the nose or cheek, when having the x-ray taken, to demonstrate the opaqueness of the glass.

Goggles have greatly interfered with surgical ophthalmology. But even yet we must use the magnet on occasions, to remove magnetic foreign bodies from eyes. The sooner this is done the better; until this is done, the first aid treatment is atropine and bandage.

For burns of the eye, one should immediately

dilute with quantities of tap water preferably from the hot tap (as water that has passed through a boiler is more sterile than otherwise). If the burn is from an acid and a *mild* alkaline eyewash can be obtained within 30 seconds use it. Not long ago I saw a technician who splashed one drop of tenth normal sodium hydrate into her eye. She immediately washed it out with an ounce of tenth normal hydrochloric acid. The result was an unnecessary and severe acid burn.

Pieces of mortar or slacked lime occasionally get under the lids. Immediate treatment is rapid dilution with tap water, and this can be more thoroughly done if the eye is anesthetized with cocaine or one of its substitutes. The lids should be everted, indeed doubly everted. This can easily be done with a Desmarres retractor or a Walker's lid everter (Beard's Ophthalmic Surgery, p. 373). All particles must be removed before one can say it is thoroughly done.

The use of tear gas is increasing, consequently we must be prepared to care for such cases. Dr. Wm. D. McNally recommends, after considerable experience, first—large quantities of tap water, followed by 0.4% sod. sulphite, in glycerine 75% and water 25%. This should be used immediately and frequently in the eyes, and if severe burns have occurred the fornices must be probed to keep adhesions from forming between the lids and eyeball. On the face 4% sod. sulphite in 50% alcohol is more efficacious.

For refrigerating gas ( $\text{SO}_2$ ) burns, sod. bi-carb. 0.4% in glycerine 75% and water 25% is found efficacious. It also should be preceded by thorough irrigation with quantities of water.

In the city, corneal ulcers seldom require the attention of the general practitioner. The handling of such cases is not always easy for the specialist, and inasmuch as so many specialists are available, it is never necessary for a general practitioner to assume the responsibility of such a case.

The doctor who is called to give first aid is in a psychological position to inquire the cause of the injury and suggest prophylactic measures against repetition. Many protective devices in industry today are the result of careful study of accidents by inquiring and thoughtful physicians.

## EYE COMPLICATIONS OF THE ACUTE EXANTHEMATA IN CHILDREN

RICHARD C. GAMBLE, M.D.

CHICAGO

The ocular complications of the exanthematous diseases may in a general way be considered in two groups. In the first group may be placed the various types of inflammation of the lids, conjunctiva and cornea caused by the specific skin eruption involving these structures. In general, complications of this type are common, they occur early in the course of the disease and their presence is quite obvious. In the second group we find inflammations of the intraocular structures, of the orbit and of the optic nerve. These conditions are less common, they occur later in the course of the disease, they are more serious and the diagnosis may be much more difficult. As a rule, the complications in this second group result from secondary bacteremia of pyogenic organisms and not from the virus of the specific exanthematous disease.

In the past, smallpox was responsible for many cases of blindness. In some instances the pustules appear on the cornea and lead to perforation or at best to very dense opacities. In other cases the marked lid swelling, the profuse purulent conjunctival discharge and the lowered resistance of the patient results in corneal ulceration. Fortunately, these cases are now extremely rare. Mention should perhaps be made of vaccinia of the eyelids which is acquired by unwittingly transferring smallpox vaccine or the material from a vaccination bleb to the eyelids by the fingers. Erysipelas less frequently produces corneal ulceration. In measles there is less lid swelling so that corneal ulcer is rare even though there is a profuse discharge from the conjunctiva. Quite frequently, however, phlyctenular keratitis follows measles, and abscess of the lids due to infection of the meibomian glands is frequently seen during convalescence.

Intraocular inflammations are fortunately quite rare, but when they do occur they are severe and destructive. Panophthalmitis occurs more frequently from scarlet fever and measles than from the other diseases. The lids become markedly red and swollen, the eyeball is proptosed and fixed, the vitreous and later the an-

terior chamber becomes filled with pus, the cornea turns yellow and there is considerable fever. The eyeball will rupture and pus will be discharged unless surgical relief is given. A milder type of inflammation may also occur, metastatic endophthalmitis, such as is sometimes seen in epidemic meningitis. This condition has somewhat the same appearance as panophthalmitis but it does not go on to perforation of the eyeball; after several weeks the acute symptoms subside and the eyeball gradually becomes soft and shrunken.

Acute inflammation of the structures of the orbit is one of the most important and serious complications of scarlet fever. It occurs less frequently after measles and perhaps it is well to add that it is most often caused by acute ethmoiditis resulting from a common cold. In scarlet fever there are two ways in which this type of inflammation may occur, by bacteria being carried by the blood to the periosteum of the orbit, and by severe rhinitis causing infection of the nasal sinuses, usually the ethmoid or antrum, and this infection in turn extending to the orbit. The metastatic type is the more serious of the two because there is no possibility of spontaneous healing by having the pus drain back into the nose, and a child who develops metastatic infection in the orbit may have a similar condition occur in other parts of the body, particularly in the joints, lungs and pleura. When the orbital inflammation is caused by extension of sinus disease it may or may not go on to true abscess formation. Swelling of the lids due to venous obstruction in the ethmoid region may be the only symptom and may subside after a few days. In more severe cases the infection may break through the orbital wall of the ethmoid capsule and form a sub-periosteal abscess. This causes the eyeball to be proptosed and to some extent limits its motility. When the process has gone as far as this it is still possible for it to heal spontaneously by having the pus discharge back into the nose. Quite often, however, the pus dissects its way forward and appears under the skin at the inner angle of the eyelids. Then this abscess either ruptures spontaneously or is opened surgically. While this dissecting process is going on there is possibility of its spreading backward to the meninges or to the cavernous sinus, there is some possibility of its getting through the



periosteum into the soft parts of the orbit, and there is considerable hazard to the cornea due to the marked exophthalmos. The greatest danger of all, however, is septicemia, pneumonia and empyema. This is specially true in patients under two years of age and in cases where surgical intervention is done too early before the abscess has had time to become walled off. Treatment of this condition consists in the use of ephedrin or adrenalin in the nose, mild nasal suction, and hot fomentations and perhaps some antiseptic ointment to the eyes. Many cases recover with this treatment alone. If an abscess forms and shows signs of pointing near the inner canthus it should be opened. Intranasal sinus operations, extensive external sinus operations and blind exploratory incisions into the soft parts of the orbit should be avoided, especially early in the course of the disease.

Optic neuritis is sometimes seen in a case of orbital cellulitis where the infection has broken through the periosteum into the retro-bulbar space. It also occurs rarely as an isolated ocular complication and, of course, is often one of the findings when meningitis or encephalitis follows one of the exanthematous diseases.

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## THE DIAGNOSIS OF IRITIS

SANFORD R. GIFFORD, M. D.

CHICAGO

In considering the diagnosis of iritis, may I remind you briefly of the changes which occur in this condition. Usually not only the iris but the ciliary body is involved in an inflammatory process and we call the condition iridocyclitis. There is congestion of both organs but it is impossible to see the vessels of the ciliary body and sometimes difficult to see those of the iris. What we do see is a congestion of the deep ciliary vessels as they pass over the sclera. This differs in no way from the congestion of acute glaucoma. It differs from that of acute conjunctivitis in that it is most marked near the cornea and less so away from it. The difference between deep and superficial congestion is a rather academic one, since both deep and superficial vessels are often involved in iritis. Fortunately we have the other signs of inflammation.

There is swelling of the iris. We see this as a blurring of the normal iris markings, giving its surface a muddy appearance. This is only recognized by comparison with the other eye under the best possible light.

There is exudation. The normally clear aqueous becomes cloudy and filled with leucocytes. This we see directly if a sharply focussed beam of light is thrown on the eye, when the space between cornea and iris, normally optically empty, is seen to be opalescent. The cells often collect in clumps on the back of the cornea and these may be seen directly in good focal light. In an early or mild case, however, this opalescence is too slight to be detected without special instruments.

There is pain. This is usually marked in an acute case but less marked or absent entirely in many chronic cases. The pain is described in different ways by different patients and there is nothing of constant diagnostic value in their descriptions. The chief difference between this pain and that of acute glaucoma is that in iritis it rarely provokes nausea and vomiting. In acute conjunctivitis there is rarely real pain, only at times the vague sensation of a foreign body. The pain of acute iritis is in large part due to spasm of the ciliary muscle and is hence relieved greatly by atropine.

There is reduction in vision. This is due in part to ciliary spasm which causes a temporary myopia but also to cloudiness of the aqueous or to the deposit of a fibrinous membrane on the lens capsule. Hence it is not marked in the early case and in the mild case vision may be practically normal. In the chronic case vision is often normal till the pupil becomes occluded by a membrane. In acute glaucoma the reduction in vision is much greater, while in acute conjunctivitis there is no reduction in vision.

The pupil is small. This is the most valuable and constant difference between the signs of acute iritis and acute glaucoma and the one most easily observed. The pupil may react slightly to light but does not dilate in the dark as does the normal pupil. In acute glaucoma the pupil is always dilated, and does not contract in the light. This sign alone should usually distinguish between the two conditions.

The intraocular tension is usually low in iritis and always high in glaucoma. This may be difficult to determine by palpation, however, since

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From the Department of Ophthalmology, Northwestern University Medical School, Chicago.

Read before the Chicago Medical Society, October 30, 1935.

the tenderness of the eye prevents the use of deep enough pressure to determine it. A tonometer will always determine it, however, and the ophthalmologist should always use it to obtain the exact tension in a doubtful case. In later cases of iritis the tension may rise, presumably when cells or exudate have blocked the outlets for the aqueous. But the diagnosis of iritis should have been made by other signs long before this occurs.

The pupil is not only small, but early becomes bound down to the lens capsule by adhesions known as posterior synechiae. On account of these and spasm of the sphincter pupillae, the pupil is resistant to atropine and homatropine. Where rise of tension has been excluded, it is often useful to watch the effect of a drop of 2% homatropine. Following this there is only partial dilatation of the pupil, parts of the border usually remaining adherent to the lens until more vigorous treatment with mydriatics has been employed. In acute conjunctivitis there is, of course, no interference with dilatation of the pupil after homatropine.

The error of mistaking acute iritis in its early stages for acute conjunctivitis is at least as common in my experience as the one more often warned against of confusing acute iritis and acute glaucoma. While the latter is serious, it is usually corrected by a call for the specialist's advice. When the general practitioner makes a diagnosis of acute conjunctivitis, however, he is very apt to treat the case himself and may well do so, provided his diagnosis is correct. If the case is really one of iritis, however, the case may easily pass the early stage in which treatment is effective and be finally diagnosed when irreparable changes have taken place. Nearly everyone has a wholesome fear of glaucoma, but it is not so generally recognized that the sequelae of iritis may be every bit as unfortunate. The pupil rapidly becomes so bound to the lens that dilatation is forever impossible, a membrane fills the pupillary space, and in a severe case membranes form behind the lens which later cause retinal detachment and blindness.

The slide shows the principal points of differentiation between acute iritis and the two conditions with which it is most commonly confused, acute glaucoma and acute conjunctivitis. It should always be possible to distinguish between these conditions without special instruments. When thinking of glaucoma, the size of the pupil

is most important, but the much greater loss of vision in glaucoma will nearly always be a second plain indication. The tension is of absolute diagnostic significance, but, as previously stated, tenderness and tenseness of the lids may prevent reliable findings by palpation. In considering acute conjunctivitis, it will usually be sufficient if we remember again that true pain is almost never present in conjunctivitis and the vision is not affected. Almost equally important is the presence of mucoid or purulent secretion in conjunctivitis while in acute iritis there is only increased lacrymation.

Chronic iritis is much more difficult to diagnose without special instruments, especially the quiet cases which show no congestion. Sometimes the pupil may be seen to be distorted or traces of a membrane are in the pupil. These signs may be impossible to see, however, without dilatation of the pupil. The use of a drop of 2% homatropine is usually sufficient to allow of a diagnosis by revealing posterior synechiae. It cannot be said that this is without danger, however, unless accurate means of recording tension are at hand. Most practitioners will prefer to advise special examination in those cases showing loss of vision for which they cannot find a cause.

When we have made a diagnosis of iritis, we are, of course, only at the beginning of our task since we must make, if possible, an etiologic diagnosis. This problem, however, I leave in the capable hands of Dr. Brawley.

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## ETIOLOGY OF IRITIS

FRANK BRAWLEY, M. D.

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The chief causative factors may be classified as follows:

1. Focal infections.
2. Systemic disease as syphilis, gonorrhea and tuberculosis.
3. Allergy.
4. Traumatism due to operative procedures and to injuries, perforating or otherwise.

Experimental work shows iritis can be produced by actual lodgement of microorganisms in the eye. In most instances, however, there is no demonstrable evidence of bacteremia. Formerly these cases were ascribed to a rheumatic con-



dition but now evidence has accumulated showing that many of them are due to foci of infection in remote parts of the body. The most common foci are found in the teeth, tonsils, nasal sinuses, prostate gland and deep urethra, the colon, urinary tract, uterus, and gall-bladder. While not finally determined the present impression is that the iritis is brought about either by direct lodgement of organisms in the eye; by systemic intoxication from toxic products from bacteria, either produced by them or released by autolysis of dead organisms, or by an allergy.

The first hypothesis, that of a bacteremia, is very rare. The second factor, that of toxemia, acts by elective localization and is probably the most frequent cause of iritis, uveitis, etc.

Rosenow's work, confirmed by many others, demonstrated that intraocular infections could be produced in animals from an infective focus by intravenous injection of the infecting streptococcus. These were cases where iritis was present and had been proven to be due to the organism used in the experimental work. From 67 to 75% of the animals inoculated developed the endocular infection, iritis, etc. The cases of focal infection, where no ocular complications existed, showed only 7% of endocular infection when their infecting organisms were injected intravenously into animals. These results have been questioned by other investigators, who, unable to confirm the tests, deny the whole theory of elective localization.

As to allergic sensitization there is considerable evidence accumulating to show that this phenomenon is a factor in the production of intraocular inflammatory reactions, especially in recurrent cases. An allergic response may occur from bacteria, their toxic products, or from other foreign proteins even in such minute amounts that they produce no systemic symptoms.

By first immunizing animals by subcutaneous, intravenous, or intraperitoneal injections of a foreign protein, an iritis has been produced by injecting the same substance after an interval. This has been repeatedly demonstrated in tubercular infections not due to the bacilli themselves but to their disintegration products which escape into the blood stream of an allergic patient and produce repeated attacks of iritis, the original tubercular focus being symptomless.

Gifford, in 1931, analyzed 118 cases of iritis;

22% were of tonsillar origin, 16.9% due to syphilis, 12.7% to infected teeth, 8.5% to combined infections, 6.8% to sinus infections and 6.8% to gonorrhea, 1.7% were diabetic and in 16.1% no cause could be found.

Iritis due to syphilis may occur in the acute secondary stage and may be difficult to differentiate from ordinary iritis. However, systemic manifestations will usually be found if searched for carefully. In certain improperly treated cases of syphilis a Herxheimer reaction may involve the iris. Late cases of syphilis may show iritis which may possibly be due to another cause while it is not uncommon to find negative serological tests in this stage, obscuring the diagnosis. Even efficient treatment of the syphilis, if not continued long enough, results in involvement of the iris and uveal tract as these structures, together with the central nervous system, are very slow in developing immunity. This is shown also by the fact that cases with iritis show a higher percentage of neuro-syphilis than those without it.

In gonorrhea, iritis usually occurs with the arthritis. Late iritis in gonorrhea may also occur due to a prolonged infection with the development of allergy.

Prostatic infections, aside from the gonorrheal type, are usually secondary to other infected foci as in the teeth and tonsils and may cause relapses after the original focus has been removed.

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## THE TREATMENT OF IRITIS

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In the treatment of endogenous iritis it is of the utmost importance to consider the underlying etiology. When this is known, treatment is employed to eradicate whatever the source of infection may be. However, there are many cases in which the etiologic factor cannot be found, and the treatment must be empirical.

The empirical treatment consists of the use of mydriatics, foreign proteins, systemic treatment, heat, tuberculin, etc.

Mydriatics are used in all cases of acute and in most cases of chronic iritis or uveitis. Atropine sulphate, U. S. P., is the mydriatic most used, the strength varying from one to five % in solution. Actual crystals may also be used. More fre-

quent instillations of the weaker solutions are preferable to those of greater strength. The instillations should be made in such a way that the cornea comes into intimate contact with the solution, as it is best absorbed through the cornea. The drops may be instilled into the upper part of the eyeball or the patient may be in a prone position. If the dilatation is sluggish, or posterior synechia are present, subconjunctival injections of cocaine hydrochloride, U. S. P., epinephrine hydrochloride, U. S. P., and atropine sulphate may be made after first anesthetizing the eyeball with Butyn 2%, Pantocaine 1½%, or Holocaine 1%. Aseptic precautions must be observed. A good formula to use is the following:

## Rx

Cocaine hydrochloride, 4%.....	mij
Epinephrine hydrochloride, 1-1000.....	mij
Atropine sulphate, 1%.....	mij
Normal Saline Solution.....	mx

The above subconjunctival injections may be made daily for three to six days. The site of injection is sterilized with an applicator soaked in half strength tincture of iodine.

For patients sensitive to atropine sulphate, or who develop an atropine conjunctivitis from use of same, one may substitute scopolamine hydrobromide, U. S. P., (from 0.2 to 1%), hyoscine hydrobromide, U. S. P., (from 0.1 to 1%), or duboisine sulphate (from 0.25 to 1%). Scopolamine hydrobromide seems to give the best results.

Epinephrine packs consisting of a small fold of cotton saturated with three to four minims of epinephrine solution 1:1,000, and placed in the previously anesthetized culdesac for two and one-half minutes, is also useful as a mydriatic agent when atropine sulphate fails. It is a much safer procedure than the subconjunctival injection method mentioned previously. Levoglucosan may also be used to break posterior synechia when other milder procedures fail. The packs may be used one to two times daily for a period up to six days.

Some authorities advocate the use of Dionin (ethyl morphine hydrochloride solution, 1-10%), or in powder form in conjunction with the mydriatics.

For many years the use of milk injected intramuscularly has been of great value. Ten cc. of non-pasteurized milk, boiled for three minutes, is injected intramuscularly, usually in the gluteal

region, every 48 hours for three to four doses. This results in a rise in temperature to 101-103° or more, accompanied by a chill, lasting half an hour or more. The injections are not repeated until the temperature has been normal for a twenty-four hour period. The injections occasion considerable local pain and may even result in abscess formation.

For this reason we have abandoned the use of milk and now use typhoid vaccine injected intravenously in increasing doses. The dose here depends upon the type and strength of typhoid vaccine used. We usually start with 15,000,000 bacilli injected intravenously, increase the dose 10,000,000 after the temperature has been normal for twenty-four hours, and follow with the third and subsequent injections on alternate days, increasing the dose at each injection according to the previous reaction. Milk derivatives such as protein milk may also be used. Mild cases of iritis may be treated with intramuscular injections of Omnadin 2 cc. on alternate days. No fever reaction or chill usually results here.

The general condition of the patient must be carefully considered before a foreign protein is administered, the contra-indications being fever, low vitality, heart disease, etc.

The systemic treatment should include the use of mild mercurous chloride at night followed by saline purges in the morning. Sodium or acetyl salicylate is widely used, and in amounts from 30 to 100 grains daily. Gifford advocates the use of one grain per pound of body weight daily, depending on the tolerance. Mercury rubs and iodines may be of value. Calcium gluconate, 10 cc. of a 10% solution, given intravenously daily or every other day may be of benefit.

Of utmost importance is the use of heat in some form to increase the hyperemia. Formerly this was accomplished by the use of hot moist applications. Lately we have been using the more hygienic and easily applicable electrothermophore, diathermy and most recently short wave diathermy, which we have found to be very efficacious. Infra-red or therapeutic heat lamps may also be used at two to four hour intervals.

Tuberculin therapy is used in those cases where a suspicion of a tuberculous etiology may be present. There is some danger of the diagnostic test, especially if the posterior segment is involved. In treatment the usual initial dose is



very small, usually 0.00001 mg. of old tuberculin; it is repeated once a week in gradually increasing dosages over a period of several months.

In the treatment of chronic uveitis where no definite etiology is present, one may use intravenous injections of sodium gold thiosulphate, 0.025 gms., twice weekly. From twenty to twenty-five injections may be given in one course and may be repeated two to three months later.

58 E. Washington St.

## DIVERTICULA OF THE FEMALE URETHRA

### Report of Two Additional Cases

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Urethral diverticula have been reported in the literature since their description in 1814 by Sir Charles Mansfield Clarke. Most reports are confined to diverticula of the male urethra. Recently I reported six cases of diverticula of the female urethra. Since then two more cases have been seen, which I desire to report here. I am indebted to the members of the Urological department of St. Lukes Hospital for this privilege of reporting these cases.



Fig. 1. Urethrogram case 1 made by injecting iodide in KY jelly from blunt tipped syringe at meatus.

bladder. Urethroscopy revealed the opening of a diverticulum. This was injected from the meatus with 15% Sodium Iodide in KY Jelly, using a blunt tipped bulb type syringe. (Fig. 1.) The diverticulum was dissected out vaginally and removed. Recovery was uneventful.

Case 2. H. W., a colored female of 37 years was admitted to St. Lukes Hospital, No. 313768, on the regular service. She had noticed a vaginal mass for seven years and had also had burning and slightly increased frequency of urination during this time. She had undergone a supravaginal hysterectomy in 1927, at which time the mass was present but not large and was diagnosed as sub-urethral abscess. She denied venereal disease. In the anterior vaginal wall a mass the size of a large walnut was palpable and was slightly sensitive. Urethroscopy revealed several apparent defects, one of which allowed an ureteral catheter to pass for several centimeters. 8% Sodium Iodide was injected and an x-ray made. (Fig. 2.) The mass was dissected down to a rather wide pedicle and excised. Recovery was uneventful.

*Classification of Urethral Diverticula.* The usual classification which is followed by every one reporting instances of diverticula of the urethra is that of Watts.

*Urethral Diverticula.* A. Congenital.

B. Acquired.

1. From dilatation of the urethra

a. Due to urethral calculus

b. Due to urethral stricture

Fig. 2. Urethrogram case 2 with cystourethroscope in place.

### CASE REPORTS

Case 1. E. K., a young white female of 30 years, entered St. Lukes Hospital, No. 305238, on the service of Dr. L. E. Schmidt. She had been complaining of burning on urination at intervals for six years, which lately had become constant. One year ago backache appeared and was severe. Pelvic examination by Dr. H. O. Jones was completely negative. She had never had venereal disease. Cystoscopy revealed a normal

2. With perforation of the urethra resulting from

a. Injuries to the urethra

b. Rupture of abscesses into the urethra

c. Rupture of cysts into the urethra

*Histology of the Female Urethra.* The length of the female urethra is about 25 to 30 mm.

The mucous membrane forms longitudinal folds. It is lined with stratified squamous epithelium. In many cases, however, pseudostratified columnar epithelium can be found; numerous smaller and larger invaginations (lacunae) are formed by the epithelium. The outpocketings in their wall are lined in many places with clear mucous cells, as in the glands of Littre in the male urethra. The glands may accumulate colloid material in their cavities or may even contain concretions.

The lamina propria, devoid of papillae, is an irregularly arranged connective tissue with abundant elastic networks. It is provided with a slightly developed system of venous plexuses and has therefore a cavernous character.

The mucous membrane with its veins is surrounded by a thick mass of smooth muscles.

*Embryology of the Urethra.* Embryologically, the vesico-urethral anlage enlarges and transforms into the bladder and into either the entire female urethra or the prostatic and membranous male urethra.

Embryos of ten weeks are at the beginning of the definitive stage. In the male, the edges of the urethral groove progressively fold together and thus transforms open urogenital sinus into the tubular urethra. The scrotal swellings shift caudad to their final position where each becomes half of the scrotum, separated from its mate by the raphe and underlying septum scroti. In the meantime, the shaft of the penis elongates, and by the fourteenth week, the urethra has closed as far as the glans. The urethra is then continued along an epithelial plate which represents a solid part of the original urethral anlage incompletely partitioning the glans; by splitting, the plate is first converted into a trough which promptly recloses into a tube that continues the urethra to the definite opening at the tip of the glans.

Changes in the female are less profound, yet slower. The phallus lags in development and becomes the clitoris with its homologous glans clitoridis and prepuceum. The shorter urethral groove never extends onto the glans as in the male. It remains open as the vestibule. The urethral folds which flank the original groove constitute the labia minora.

Suter explains the embryological defect leading to the formation of congenital diverticula in this way: The urethra takes its origin from the genital furrow which, covered with epidermal epithelium, forces its way into the position which it is to occupy later as the urethral canal. This canal, at first partially open, has at this time a communicating bridge of epithelium with the external surface. The epithelium of the canal becomes cylindric; that of the communicating epithelial bridge remains squamous. Normally the walls of the canal coalesce and become the urethra, and the epithelial bridge is absorbed. It is the persistence of this communicating epithelial bridge that Suter believes is the cause of diverticulum formation or of dermoid.

Kaufman states that "in the male any diverticulum not in the pendulous urethra near or in the fossa navicularis cannot be of congenital origin." In the female, however, the absence of this highly differentiating area in the development of the urinary organs explains the failure of the development of congenital diverticula in them.

*Etiology.* Diverticula connecting with the female urethra have an acquired origin, usually from trauma from childbirth especially in difficult or instrumental labor, and from abscess cavities which have drained into the urethra and have frequently failed to become obliterated.

An interesting illustrative case is under observation at the present time in the out-patient department of the hospital. Several months ago a young colored female was first seen complaining of severe frequency and burning on urination and a low backache. She had had gonorrhea and had two instrumental deliveries. Examination revealed thickening of both Bartholin glands, one of which eventually abscessed. The urethra was markedly thickened and boggy. A slight urethral discharge showed no gonococci. While under observation the symptoms subsided but a cystic mass about the size of a pecan remained. Mercurochrome injected into it appeared at the meatus. She is now waiting for a hospital bed for complete examination and care.

Routh thought their etiology might by 1.



closure of the ducts of pre-existing urethral glands; 2. blood cysts; 3. formation of pseudocysts by injury to the urethral floor during labor or instrumentation.

Tait thought they originated in an error of development, namely an offshoot resulting from a faulty union of the primal folds.

In making a decision histologically between a congenitally formed diverticulum and an acquired one, we should, in the absence of secondary inflammatory changes, find the wall of the congenital urethral diverticulum containing those strata characteristic of mucous membrane, namely epithelium, basement membrane and tunica propria.

In one of the previously reported cases the histology shows a sac wall which has all the requirements of one congenitally formed (Fig. 3). However, the history reveals the occurrence

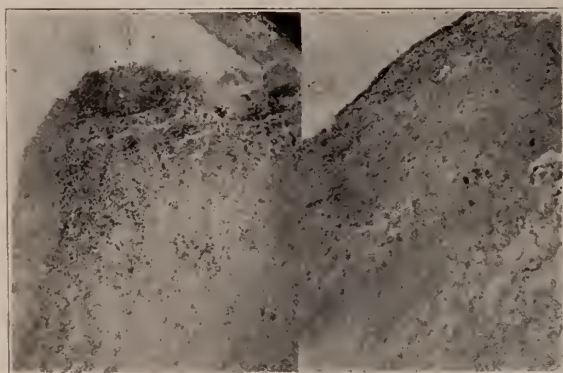


Fig. 3. Photomicrograph of sac wall showing complete epithelial lining.

Fig. 4. Photomicrograph showing sac wall with edge of epithelium.

of an acute inflammation of the periurethral tissues which was diagnosed a periurethral abscess. Whether this was true or whether the periurethritis occurred around a sac already formed is difficult to decide. Dr. E. F. Hirsch, the pathologist at St. Lukes Hospital, suggested the possibility of the sac developing from traction on the urethra during contraction following the periurethritis, analogous to the development of traction diverticula of the esophagus.

Case 1 gives no history of either trauma or inflammation, and the sac wall was of the inflammatory type, but with a partial epithelial lining varying from columnar to pseudo-stratified. (Fig. 4) Case 2 gives a history of an

inflammatory process and the sac wall is typically of the acquired type.

Histologically, it is difficult to interpret the findings. We consider all sacs as being of the acquired type except in the one case previously mentioned. If the sac wall has a complete epithelial lining and its walls have the same layers as are found in the urethra, it may have been formed congenitally. However, most walls are made up of scar tissues and show inflammatory changes and if a partial epithelial lining is found, it is usually near the neck of the sac and is assumed to have grown in from the urethral epithelium.

*Symptomatology.* The presenting symptoms of women with urethral diverticula are predominantly lower urinary in character. Burning on urination is common and is usually associated with an increased day frequency and occasionally nocturia. Occasionally there is bladder heaviness or suprapubic discomfort and a mild bearing-down sensation on urination. If the diverticulum becomes moderately large the patient may herself notice the swelling. Commonly some associated pathology produces symptoms such as the vaginal discharge from an endocervicitis and the low abdominal pain and low backache from adnexal disease. In no case was there hematuria and in all the urine had become infected.

*Diagnosis.* The diagnosis is relatively simple if the condition is kept in mind during an examination to determine the cause of lower urinary tract complaints. If the patient has already noticed the swelling, it is simple to orient it anatomically. In the urinary tract study, the bladder and higher urinary tract must not claim the entire attention, as many urethral lesions will be overlooked. Urethroscopy will reveal the diverticular opening. An ureteral catheter can be inserted and the diverticulum easily defined on the urogram by injecting with any of the usual radiopaque media. Urethrograms can also be made by injecting 15% sodium iodide in KY jelly from a blunt tipped bulb type syringe placed at the meatus.

*Treatment.* The treatment is entirely surgical. To attempt to aid healing by the injection of irritant chemicals is merely a waste of time and may prove dangerous. It is a simple matter to dissect out the sac under general anesthesia. After the vaginal preparation a

weighed retractor is inserted. To bring the anterior vaginal wall and the diverticulum into clear view, Young's bi-lobed prostatic retractor is inserted. The mucous membrane and fascia are divided either longitudinally or transversely over the mass. By means of sharp and blunt dissection the diverticulum is dissected out down to its orifice. This is transfixed and ligated and the soft tissues brought over the stump in several layers. The fascia and mucous membrane are approximated, removing any excess mucosa. To aid healing, the bladder is drained by an inlying small Pezzer catheter for from five to seven days. The bladder receives daily injections or irrigations to control infection. The postoperative course is uneventful, the patient leaving the hospital by the tenth postoperative day. Each of the eight cases have healed primarily.

#### CONCLUSIONS

1. Urethral diverticula in the female are not uncommon.
2. They are acquired either from inflammatory processes or trauma.
3. The marked difference in the embryology of the urethra explains the rarity of congenital origin.
4. A new factor in their production, that is, traction, is suggested.
5. The diagnosis is simple if the possibility of its occurrence is kept in mind.
6. Urethroscopy and urethrography clinch the diagnosis.
7. Excision of the sac is the only rational therapy.

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## NARCOSUSTAINED THERAPY IN PSYCHOSIS WITH HEART LESIONS

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At the outset, it may seem a bit curious for one known to dwell regularly in the realm of mental deviations to have his presentation captioned, "heart lesions." That curiousness readily will dissipate once you focus your attention on trailing down more explicitly the subject matter in hand.

In the domain of psychiatric service few indeed are those encountered with disturbances of the cardiac mechanism. The problem entertained basically was an attack upon the distorted mental elaborations independent of any other systemic implication with the recently described therapeutic component — Narcosustained therapy.<sup>1</sup> In the effort thus made, a few observations accidentally encountered in instances associated with cardiac involvements proved sufficiently provocative to justify calling thereto the cardiologist's attention.

Of the material under consideration the following briefly may be said: generally speaking, there is no definite relationship between the psychotic picture and the nature of the cardiac disturbances, including even such pathology which may have occasioned atrophies of the brain. However, in failure of compensation the person has transient confusional states with hallucinations, especially of sight and sometimes of touch. He becomes emotionally restless with predominating elements of fear, less frequently of pleasure. Noteworthy is the variable daily state of consciousness; some tend to become delirious only during the night. Breathing is increased, the sleep is disturbed; the afflicted will shout and groan. In mitral stenosis one is apt to encounter evidence of impairment of memory while in precordial distress, marked anxiety states seem to be more or less constant. Some patients may present a picture resembling the manic with wavering attention, talkativeness, ecstatic mood, combination of ideas of persecution and grandeur. Finally, there are some among the frankly manic-depressive types (incorrectly designated as symptomatic

<sup>1</sup>Read before the Chicago Medical Society (South Side Branch) at the Michael Reese Hospital, Chicago, May 10, 1934.



psychosis) in whom a disturbance of the heart function may be consequential instead.

Case 1. A retired male physician, barely past middle life, while in the course of treatment in a general hospital for congestive heart failure, was admitted to the Institute because of supervening, acutely-toxic mental symptoms. In bed he was unable to lie down, assuming the sitting posture all the time. Edema was quite extensive, the abdomen filling very rapidly after several tappings. Dyspnea was marked. The pulse was uneven and the veins of the skin stood out prominently. There was liver enlargement. He sometimes would become confused, swerving from being noisy and delusional to manifesting restlessness and distress. Sleep was scarcely possible. He was a pathetic sight. I readily concurred with the physicians previously in attendance that the man had no future. Narcosustained therapy was resorted to out of sheer humanitarian motives. He was kept in a state of light sleep for about six days.

Of particular interest was the absence of evidence of refilling of the abdomen after the paracentesis instituted during sleep. The edema of the legs likewise began to subside gradually. Due largely to my own state of keyed-up enthusiasm, the treatment was terminated on the sixth day instead of carrying it through the full ten day period. He left the Institute two weeks later, apparently free from any disturbing physical symptoms; mentally he had cleared up entirely.

Case 2. A woman, 45 years of age, married twice, was admitted with marked pressure of activity and flight of ideas. She was untidy, very noisy and destructive. She had a chronic heart condition and it was stated that, as a result of it, she had on one occasion remained in a state of coma for forty-eight hours. History of a luetic infection from the first husband was elicited. Physically, she appeared emaciated with an "earthly-brass-like" hue and visible veins of the skin. She had swollen ankles and there was a heart murmur. The physician in attendance, Dr. L. B. Dunkle, who treated her for chronic myocarditis, considered the outcome rather gravely. She was given the sleep treatment which had to be discontinued on the fifth day because of an extremely low physical state. She was allowed to come to, and when her general physical condition had improved, again was put to sleep for a period of ten days.

Mentally, after the treatment, she remained fairly normal for a while. She was taken home much improved but while there, again became excited. A course of fever treatments was instituted for the luetic condition. Physically, the heart condition showed an improvement approximating a cure. She had put on considerable weight and there were no ankle swellings. She was seen in a State institution a year later, her physical condition was even better; mentally, she was not well although somewhat improved.

Case 3. A newly-wed female, 24 years of age, began hearing voices telling her that she had to die. She wanted her sister to "go" with her. To make this possible, she had tried to choke her sister on several

occasions. Then she became very apprehensive over the impending disaster, appeared suspicious and frightened; she refused food and became untidy. Physically, she was thin with an "earthly-brass-like" hue and with scattered petechia tending to assume a brownish appearance. There was a heart murmur that was not always heard; its character too, was subject to changes. A diagnosis of schizophrenia with endocarditis was made. She was given the sleep treatment and kept in a state of light narcosis for nine days. The average daily dose of dial used in this case was a little over ten grains. One dose of digalen was given on the second day of sleep. The murmur subsided early in the course of treatment and was not heard again a month later. Mentally, she awoke apparently free from any symptoms, but had a relapse one week later.

Case 4. A married man, 51 years of age, economically very comfortably situated, was admitted to the Billings Memorial Hospital, because of shortness of breath and palpitation for about three years and edema of the feet and ankles for four weeks. Later, he was referred to us for morphine addiction which had developed because of severe dyspnea. On examination, the left border of the heart was found to extend to the anterior axillary line. There was a presystolic gallop rhythm, a slight systolic murmur and occasional extrasystoles. The urine and renal functions were normal. He was subjected to a state of narcosis for a period of five days for the residual drug tendencies. Under Dr. Leiter's regimen, previously instituted, the heart condition showed much improvement.

These cases are included to bear out my contention that certain heart conditions are no contraindication to sleep therapy with dial. For the heart conditions which were not available here for application, care is to be exercised in applying sleep therapy before its value and margin of safety are ascertained. Similarly, cases with severe forms of arteriosclerosis may require guarded consideration. There is a gradual reduction in the systolic blood pressure averaging about 30 mm of mercury during the first few days, returning to normal afterwards and not infrequently reaching above normal towards the end of the treatment. According to Wicki,<sup>2</sup> the quantity of dial necessary to stop the heart's action is seven times greater than the amount necessary to arrest respiration. Dargein and Dore,<sup>3</sup> reporting a case of poisoning, pointed out that dialylbarbituric acid may have a direct effect on the nervous mechanism of the heart. Jackson and Lurie<sup>4</sup> maintain that the effect of the derivatives of barbituric acid on the heart is temporary and not an untoward reaction.

The material just reviewed, while numerically rather meager to justify very convincing asser-

tions has, nevertheless, a measure of qualitative merit to compensate for this limitation. To those familiar with prolonged sleep therapy in psychiatry, there is today no known measure in mental therapeutics equally meritorious. From reports of different investigators including observations of my own, from 60 to 80% of selected cases conservatively estimated, have been rendered symptom free, where every other measure previously tried, had failed. Yet, there is still a remainder that resists even this form of approach. Needless to say, that by resorting to sustained sleep one is incapable of concretely solving all the problems awaiting solution which, possibly, have for years coaxed the individual into a dramatic state of oblivion. Yet an open avenue of approach is made possible by this method psycho-therapeutically further to strip the individual of his bearing-down wraps. Else how often if ever, does one successfully penetrate through the rigid realm of the combative and inaccessible; through the negativism of a stuporous catatonic; through the extreme flight of ideas of an irritable hyperactive manic, etc.?

Isolated instances of cures through the induction of a state of stupor in the field of mental therapy have been known for centuries. Klasi,<sup>5</sup> however, is credited with having systematized in 1920, the method of inducing the prolonged sleep now employed in modern psychiatry. A number of investigators have followed in rapid succession, equipped with newer chemical components. The barbiturates were found more serviceable. Prominently represented are dial, somnifen, and sodium amytal: luminal also has been tried.<sup>6</sup> In this country, dial has been used by the essayist since 1929. Blackwenn,<sup>7</sup> in 1930, reported using sodium amytal. Some of the progress with the derivatives of barbituric acid is to be credited to obstetricians who have sought to alleviate pain at childbirth.

From experiments carried on with different agents used in sleep, it is apparent that hypnotics of the barbiturate group have a direct effect upon the thalamus and are therefore considered as thalamic hypnotics while ether, chloroform, alcohol, chloral hydrate, paraldehyde and bromides are classified as cortical narcotics or hypnotics.<sup>8</sup> Kesser and Kesser<sup>9</sup> demonstrated the presence of barbiturates in the mid-brain and thalamus, suggesting that

these regions are of particular significance in sleep. For instance, caffeine as a cortical stimulant, easily awakened animals in which sleep was induced with chloral hydrate. In the decerebrated animals caffeine proved to be inactive. In the same condition, that is, when sleep has been induced in decerebrated animals with chloral hydrate, drugs such as epinephrin or ephedrin considered to be subcortical stimulants, have pronounced waking effect. The combined cortical and thalamic hypnotics have synergic effects on animals.

These observations should prove of value to the clinician dealing with severe forms of insomnia, in pronounced cases of psychoneurosis and during the acute stages of the mentally disturbed.

For the purpose of comparisons, I have here and there investigated the barbituric acid derivatives more commonly in use. The actions of the available barbiturates are subject to certain variations. Some of them are short-acting, while others may be classified as long-acting; there are also those whose actions are more or less intermediary. A striking example of the short-acting group is nembutal. Sodium amytal is an example of the intermediary-acting drug. Given per mouth dial acts rather slowly and in isolated instances beginning sleep may be relatively protracted in the first twenty-four hours especially in drug addiction and alcoholics where larger doses usually are required. However, once a deep sleep is effected, most of them continue on smaller doses. Moreover, the narcotic effect of dial is considerably more lasting and it is because of the last stated property that I have found dial the most serviceable in prolonged sleep therapy. The effect of luminal on the thalamic area is rather negligible. Patients cannot be deeply narcotized with this drug unless amounts larger than therapeutic doses are administered. Somnifen is not well borne by the heart, and has a greater tendency to the production of a state of collapse or bronchopneumonia than do other barbital derivatives. Juliusburger<sup>10</sup> in 1914, stated that along with other barbiturates, diallylbarbituric acid appears to have an affinity for the thalamic area of the brain. Individual tolerances must, of course, be considered. (See Chart 1.)

*Technique.* Physicians contemplating the ap-



plication of this form of therapy would do well to read the description in detail in the *Journal of Mental and Nervous Diseases* for March, 1934. Briefly, the procedure begins on the night before by having the patient prepared as for a major operation. In the morning the

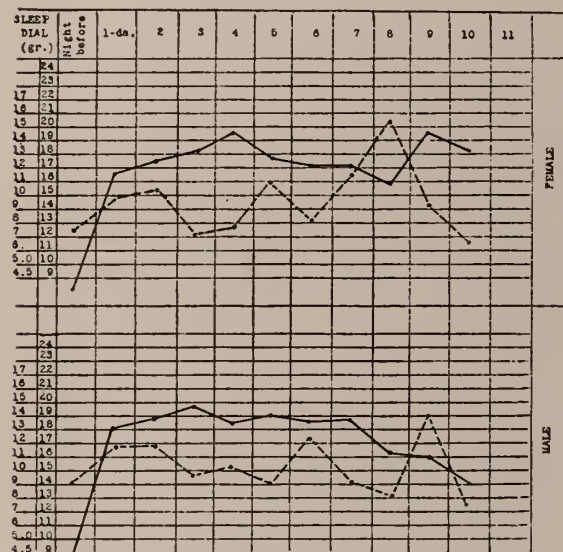


Chart 1. Showing average number of hours of sleep and Dial used every 24 hours in 16 cases.  
 ————— Daily Sleeping Hours.  
 - - - - - No. of Grains of Dial in 24 Hours.

lower bowel is cleansed with enemas. Fluid in the form of unsweetened tea and sodium bicarbonate, four drams in water, constitute the total intake per mouth for the day. At the approach of evening one capsule containing  $4\frac{1}{2}$  grains of dial is given orally and repeated in four hours until initial signs of dimming consciousness appear. I have often added two or three capsules of nembutal to the initial doses of dial. The action of nembutal is almost spontaneous but of short duration. Under simultaneously administered doses, by the time the patient ordinarily awakens from nembutal, he continues to sleep from the dial. When the patient is combative, resistive and negative, the initial dose of the drug is given rectally instead of orally. *At no time should the dose be repeated when the patient is drowsy and swallowing is difficult.* As soon as there is any indication of a cloudy state of mind, proctoclysis is at once begun and about 2400 cc. of physiological salt solution in six divided portions is given in twenty-four hours by the drop method. To three of these feedings, five per cent. of grape

sugar is added, and one such sugar solution is given alternately with one of straight, physiological salt. A total of 60 grams of dextrose is the average amount used in twenty-four hours.

The patient is kept in a state of narcosis for a period of ten days. Cases of drug addiction do well in four to six days. The drug now is administered rectally, for which purpose I use an aqueous solution specially prepared by the manufacturer, 1 cc. of which is equivalent to a grain and a half of dial. From 3 to 4 cc. usually is introduced through an aperture in the Murphy drip tube so that it will enter the rectum along with the feeding solution, drop by drop.

The types of sleep recorded are, sound, light, drowsy or wakeful. The depth of sleep has no material bearing on the clinical outcome. A convenient way of measuring depth is to make a comparative test of the patellar reflexes with those of the biceps. In a lightly narcotized patient, the knee jerks are sluggish while the biceps are brisk. In deep narcosis, the knee jerks are lost while the biceps remain sluggish.

The nurses are provided with work charts which call for recording evidences of shock, coughing spells, body rashes, rhinorrheas, too rapid pulse, rapid breathing and urinary retention. The patient is turned from side to side about every two hours, occasionally on the abdomen, rarely on the back. He is allowed to arouse an hour or two every day in order that he may move and turn about for much needed exercise. When medication is stopped, consciousness gradually is regained. The patient recognizes people about him, but the memory retention remains poor. Such a state of amnesia is quite general and pronounced and lasts about 72 hours. Speech is difficult, only single words are enunciated and these with difficulty. Often these are repeated over and over again. The whole picture bears a close resemblance to sleep in lethargic encephalitis. The patient takes note of everything around him and hesitates. Frequently, delusional trends follow partial awakening in this stage, often reflecting situational conflicts quite vividly. In many, a mild toxic state with predominating visual hallucinations and confabulations frequently is discernible.

The most important complications to guard against are bronchopneumonia, collapse and

drug idiosyncracies. Of lesser importance are dehydration, urinary retention, trauma and gaseous abdominal distentions. Incidents of pneumonia are lessened by adhering strictly to the details of the preparatory stage, by avoiding too deep narcosis extending over long hours, by changing positions of the body, by allowing daily rousing periods and lastly, by checking vomiting tendencies.

Too sudden and too deep narcosis may predispose the patient to collapse. In the event of collapse or coma, the use of coramine in doses of 5 to 15 cc. administered intravenously hourly or oftener if necessary, until the patient arouses, is advised. Drug idiosyncracies become apparent generally on the day the drug is given, manifested by a scarletinous rash and accompanied by profuse nasal and pharyngeal mucous secretions. Along with the rash there comes a rise in temperature usually not evidenced so early in the treatment. Such experiences suggest the advisability of administering one dose of the drug before the preparatory stage is fully under way.

Kidney conditions, acute or chronic, are contraindications of this treatment. The incidents of complications, if any, were manifestly fewer where an intelligent, specially trained nurse was in charge. The task of a nurse assigned to a narcotic patient is trying, but most nurses seemingly profess a juvenile enthusiasm, notwithstanding the ordeal. In short, the success will depend upon the technical exactness employed in carrying out the treatment. Each patient requires the most meticulous nursing care and medical supervision.

To explain the *mechanism* underlying the clinical achievements from sustained narcosis involves a task academically still venturous. The Bleuler school sees in the physical measures of the preparatory stage, carried out in a distinctly hopeful and confidence-inspiring atmosphere, a *psychic* influence.<sup>11</sup> The patient is given assurance that some important changes will take place after the treatment; that the treatment is the means whereby the most serious symptoms can be cured. Mueller<sup>12</sup> believes that the various hypnotics exert specific influence over various types of the psychosis. "Dial," he states, "has a specific effect upon the manics." A coagulating drug, like sodium amytal, administered to a person whose cell col-

loids are in an over-dispersed state, will result, in the opinion of Bancroft,<sup>13-14</sup> in a re-establishment of cellular equilibrium with consequent recovery. Sodium rhododate, on the other hand, administered to a person whose cells are conversely, in an over-agglomerated state, will produce similar effects. Lovenhard<sup>15</sup> and his co-workers elaborated upon the basis of cortical stimulation and cellular *oxidation*. In my former paper, elucidated on the *physiological* conception, wherein the benefits derived are due to implied rest, the patient is reverted to what appears to be a pre-natal equivalent. The goal of the embryo is strikingly developmental; hence of necessity, rest is continuous. By rest, mental rest is implied. Mere physical rest, especially in surroundings free from distracting influences, is usually conducive to greater mental insult. Owing to accrued data gathered before and after that expressed view, pointing to an altered *metabolic* state during sleep, the following postulate should be added to the gestures already stressed. In most cases treated, a state of ketosis is fairly constant. (See Chart 2.)

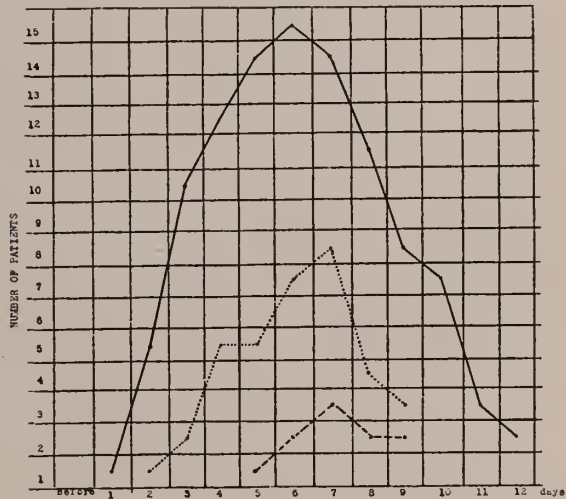


Chart 2. Showing Acetone, Diacetic Acid and Albumin during narcosustained therapy.  
————— Acetone.  
- - - - - Diacetic Acid.  
..... Albumin.

In starvatiton, such products are there because of incomplete combustion of fat. The prevailing opinion <sup>16</sup> is that as long as there is available in the diet one gram of carbohydrate for every four grams of fat, the latter will be completely oxidized to carbon dioxide and water. Should that ratio of four to one under-



go a change, so that let us say, one gram of carbohydrate is ingested with every five grams of fat, the latter is incompletely oxidized, and a state of ketosis will result. The ketones act like hypnotics. Narcosis is apparent when the blood shows 0.32 to 0.83% acetone. The dietary regimen prescribed for epileptics is calculated to effect a state of ketosis sufficiently potent to suppress epileptiform seizures without having to resort to the usual narcotics. (Narcotics usually suppress epileptiform seizures for a considerable period.) Peterman,<sup>17</sup> however, states that epileptic patients who are placed on the ketogenic diet and rendered free from attacks did not have a return of convulsions when alkalosis was produced, and that the ketosis per se was not responsible for the relief obtained. This view is corroborated further by Gamble<sup>18</sup> when he states that with the appearance of acidosis in children, due to the rapid elimination of the fixed base, dehydration results. The benefits therefore derived are because of a state of dehydration. It is reasonable to assume that a state of dehydration will make possible freer oxygen contact with the cellular structure of the brain, favoring thereby better oxygenation, which in turn may lessen the irritability of the cells.

Where the tabulation of recoveries (which tentatively speaking may be only remissions) elsewhere in this paper is alluded to, reference is made only to selected cases. These in part embrace the benign types, such as the manic-depressives and the catatonics of the more or less malignant variety. In both of these, the psychotic manifestations tend to recur, in some instances with almost uniform precision. In this particular, they are somewhat analogous to the essential epilepsies. In epilepsy there is an escape periodically from willed and productive performances, associated with a total obliteration of the psychic functions. On the other hand, in the former, there are corresponding psychic episodal projections, with the muscular system generally not participating. On the basis of this periodicity, where in the one consciousness and the motorium are involved, and in the other solely the psychic sphere, the undercurrent cannot be widely dissimilar.

*Summary.* In a series of over 100 cases in neuropsychiatric service treated with sustained

narcosis, a few were encountered with heart lesions. The latter proved to be no contraindication to this form of therapy. On the contrary, sustained narcosis was seen to be distinctly beneficial in nearly all instances of cardiac pathology encountered. I, therefore, recommend this form of therapy for use in cardiological service in cases where every other measure previously tried has failed.

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#### DISCUSSION

Dr. Morris Lev, Michael Reese Hospital: Dr. Magnus' interesting paper brings out something new for consideration in the treatment of heart disease. In heart disease we strive to give a maximum amount of rest. The treatment of heart disease can be roughly divided into two parts. First, medication directed towards the improvement of the cardiac condition itself in order to bring up the efficiency of the heart, and secondly, a reduction of the bodily demand upon the heart that already has been damaged. For tonight, we

are concerned only with the latter phase. I have had no experience with the prolongation of sleep therapy brought out by Dr. Magnus. It seems to me that this method might be applicable in two types of heart disease: first, in a definite heart muscle failure, and second, in acute coronary occlusion. In the former, I would reserve this treatment for those cases which have failed to respond to the usual type of treatment. The average case of failure I do not believe needs such a procedure as Dr. Magnus has outlined. All of us have had ambulatory cases of cardiac failure which respond fairly well to simple treatment. Neither does this method need to be employed in the usual type of cardiac arrhythmia, and certainly not in cardiac murmurs. Digitalis is not a cure or a method of treatment for cardiac murmurs. If in these patients with definite cardiac failure, our usual methods of treatment fail to bring about improvement, then Dr. Magnus' methods might be resorted to. It is feasible that a period of prolonged sleep and prolonged narcosis might give the heart a chance to recuperate, so that when the patient awakens, he is found improved.

I do not believe that prolonged narcosis should be substituted for our recognized methods of treatment in heart muscle failure. A more recent method of treating this is by the removal of the thyroid. This offers a more permanent means of relieving the demands upon a damaged heart by reducing the bodily metabolism.

In acute coronary occlusion I believe we all feel that rest is the essential factor. We try to give maximum rest, mentally and physically. This prolonged narcosis might be helpful in the type of case where morphine in sufficient doses does not relieve the pain or quiet the individual. Here again, the duration of the narcosis and its depth would have to be worked out from actual clinical experience and observation. This method is not one to be used by everybody or to be used indiscriminately. There are very definite dangers and contraindications.

Dr. John T. Nerancy, Elgin State Hospital: Dr. Magnus was kind enough to come to Elgin a year and a half ago to assist us with a number of cases in which we were instituting the dial treatment. All of these patients were treated according to this method. Institutional treatment of course, is somewhat different from private practice. We do not give the patients any luminal to put them to sleep. We do give luminal for epilepsy.

As Dr. Magnus mentioned, the depth of sleep was not of real importance. As I remember it, most of our cases indicated a very deep sleep.

The results of the treatment were practically the same as he outlined. We had a group of four patients under treatment at one time. We had one nurse, one attendant and a couple of intelligent patients helping with this group. In all, thirteen patients were treated and most of them responded favorably.

I was interested to find that not all workers believe that acidosis is the main factor in producing the beneficial results. The latest trend I understand is the introduction of insulin and glucose to prevent acidosis. Those who have worked with this claim the results

are just as good if not better. During this treatment there is a rise in the leucocyte count and there is a shift to the left of hydrogen ion factor.

There are a number of things which point to an organic influence in this treatment. I am not sure whether the psychogenic feature is the really outstanding factor.

We have had a number of cases in which we used what we call a modified sleep treatment. The patient at no time is completely under the influence of the drug, because we give small doses over a prolonged period. Twice, we have had occasion to use coramine and have found it distinctly helpful.

Dr. Frederick C. Test: As I see it, it is Dr. Magnus' contention that the administration of prolonged narcosis by temporarily obliterating the mental processes, is accompanied by some changes in the cytoplasm which apparently produces an actual, definite and positive symptomatic effect. How long does this improvement last and how often is there a recurrence of the condition for which the patient was narcotized—or is there a definite, lasting improvement?

Dr. J. F. Biehn: I should like to call Dr. Magnus' attention to some work recently done by Professor Poulton at Yale, in which he has shown that luminal absolutely abolishes the motor cortex.

I also believe that abdominal distention is due to a direct action of the barbiturate on the musculature because it affects not only the stomach and ileum but also the colon. The distension is due to a definite paralysis, as shown by Barlow at Western Reserve University.

Barbiturates are not anesthetics; they are hypnotics and sedatives. There is a marked difference between the barbiturates. We know that barbital and luminal are excreted by the kidneys and recovered 90% of the time. The others are found in the liver.

Dr. Alexander B. Magnus (closing): When a remission or cure is reported, it is taken for granted that the patient was discharged free from any mental symptoms. It is too early to say how long that patient is going to stay well. I have kept in touch with some patients for the last three or four years and there have been no recurrences. Perhaps ten or twenty years hence, we may be in better position to refer to the treatment as a cure.

## DELIVERY OF THE SHOULDERS IN VERTEX PRESENTATION

Mechanism and a Modified Method of Delivery  
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Difficulty in the delivery of the shoulders is sufficiently encountered in vertex presentations to merit an investigation of the mechanism of the passage of the shoulders through the pelvic cavity, and the cause of the dystocia. Dystocia



in the delivery of the shoulders is due to an arrest of the shoulders at the pelvic inlet in the majority of instances and is due to a disturbance of the physiology of the uterus. The result is the addition of a new diameter and fossa of the pelvic inlet, a new concept regarding the mechanism of the shoulders entering and passing through the pelvic cavity, and a modified method in the management of the delivery of the shoulders based on the mechanical and physiological principles of the first and second stage of labor.

In addition to the accepted diameter of the obstetric pelvis, the author proposes another diameter which will have a bearing on the delivery of the shoulders. This diameter extends from the sacroiliac synchondrosis at the brim of the pelvis to the middle of the superior border of the symphysis pubis which is designated as the "pubo-sacro-iliac diameter." It is a physiologic diameter in which the mechanism of labor arrests the shoulders (bisacromial diameter) in the "pubo-sacro-iliac diameter" which coincides to bony landmarks. In a number of dried pelvis it measures approximately 11 cm. (Figure 1.)

When the dried pelvis is dealt with obstetrically only the true pelvis is generally considered. Little attention is paid to the false pelvis. On each side of the promontory of the sacrum is found a depression or fossa made-up of the alae of the sacrum and the posterolateral portion of the iliac fossa. Between the two is found the sacroiliac synchondrosis. As we look upon this region from above, in the articulated pelvis, it appears to be continuous with the iliac fossa, except that the alae of the sacrum are slightly elevated. This region will be designated as the "ilio-alar fossa." (Figure 1.)

#### MECHANISM OF THE SHOULDERS IN OCCIPITO LAEVA ANTERIOR POSITION

At the onset of labor the fetal head is in or in relation to the pelvic cavity with the sagittal suture in the right oblique diameter and the occiput about 35 degrees from the symphysis pubis. The shoulders (bisacromial diameter) lie in the "pubo-sacro-iliac diameter," so that the anterior shoulder is in relation to the superior border of the symphysis pubis, and the posterior shoulder is in relation to the left sacroiliac synchondrosis and the "ilio-alar fossa" above the brim of the pelvis.

After the delivery of the fetal head the shoul-

ders are found to be above or in the pelvic cavity in either the "left pubo-sacro-iliac" or the left oblique diameter. The mechanism of the expulsion of the fetal body is dependent upon the physiologic response of the uterus, particularly the property of retraction of the upper uterine segment. When the shoulders are delayed in the movements of descent and internal rotation, after the fetal head is delivered, it signifies that the delay is due to a temporary disturbance of the physiology of the uterus in which condition the bisacromial diameter is found in either the "pubo-sacro-iliac" or the oblique diameter. When the uterus readjusts itself to normal function by further retraction of the upper uterine segment to bring about tautness of the longitudinal muscle fibres and obliteration of the transverse contracted zones, it brings about the movements of descent and internal rotation for the mechanism of the expulsion of the fetal body.

The above consideration of the mechanism of



Figure 1. AB is the Right Pubo-sacro-iliac diameter. AC is the Left Pubo-sacro-iliac diameter. B and C are the right and left Ilio-alar fossa.

the expulsion of the fetal body demonstrates that after the fetal head is delivered the shoulders follow two mechanism: First, the shoulders are arrested in the "pubo-sacro-iliac diameter" until the uterine musculature readjusts itself for the physiologic movements of descent and internal rotation. Second, with the delivery of the fetal head the uterus is rapidly adjusted to the fetal body by retraction of the upper segment which brings about the sequential physiologic movements of descent and internal rotation of the shoulders. The anterior shoulder, in the majority of instances, is found under the symphysis pubis which designates that synchronously, or

very soon after the delivery of the fetal head the shoulders have been rotated from the "left pubo-sacro-iliac diameter" into the left oblique diameter; and by further descent and internal anterior rotation the shoulders are re-rotated into the antero-posterior diameter of the pelvic cavity for the normal mechanism of the delivery of the shoulders.

*Occipito Dextra Posterior Position.* After the fetal head is in or in relation to the pelvic cavity with the occiput posterior and the sagittal suture is in the right oblique diameter with the occiput 135 degrees from the symphysis pubis, the shoulders (bisacromial diameter) are either in the left oblique diameter with the fetal back inclined to the right or in the transverse diameter with the fetal back directly posterior.

During the first stage of labor the fetus undergoes the following mechanisms:

First, the fetal head and body maintains its respective relation and is rotated as a whole within the uterus to an anterior position. Second, the fetal head and body maintains its respective relation until the presenting part meets the pelvic floor through the vagina: the position is the same as it was at the onset of labor. Third, the fetal head is rotated to a transverse or to an anterior position, but the shoulders or the fetal body are rotated slightly anteriorly.

During the second stage of labor, and after the fetal head has been delivered the shoulders are in relation to the pelvic cavity as follows: First, the shoulders have rotated to the right "pubo-sacro-iliac" or to the right oblique diameter. Second, the shoulders have not rotated and are found to be in the left oblique diameter with the fetal head inclined to the right, or in the transverse diameter with the back posteriorly. I am leaving out of consideration those cases in which the fetal head has rotated posteriorly or occipito-sacral position in which case the shoulders will enter the pelvic cavity either in the transverse diameter or the oblique diameter for expulsion.

A study of the normal mechanism of the shoulders demonstrates that the position of the shoulders in occiput anterior positions, before the onset of labor, is that the bisacromial diameter is in the "pubo-sacro-iliac diameter." The shoulders should enter the pelvic cavity in an oblique diameter. Thus the shoulders in O.L.A. and L.O.P. after the movements of descent and

internal rotation, should enter the pelvic cavity in the left oblique diameter; and R.O.A. and R.O.P. in the right oblique diameter. At the onset of labor the anterior shoulder is in relation to the superior border of the symphysis pubis, while the posterior shoulder is in relation to the brim of the pelvis at the corresponding sacroiliac synchondrosis, or the shoulders lie in the "pubo-sacro-iliac diameter" in occiput anterior positions. During the first stage of labor the shoulders usually remain in its respective "pubo-sacro-iliac diameter," until the second stage when the movement of descent and internal anterior rotation occurs with the fetal head rotating into the oblique diameter and then into the anteroposterior diameter for the mechanism of expulsion. The occiput posterior positions after rotating into an occiput anterior position undergoes the same mechanism as an occiput anterior position.

When the fetal head is in the uterine cavity or in the vaginal canal the point of direction of the presenting part in normal occiput anterior or posterior positions is the occiput, so that the longitudinal force is transmitted to the occiput through the fetal spinal column which is due to the coordinated action of the uterus<sup>1</sup> and the fetal postural mechanism.<sup>2</sup> With the fetal head delivered there must be a new presenting part and a point of direction for the mechanism of delivery of the fetal body. The anterior or the posterior shoulder becomes the presenting part with the acromium process as the point of direction to which the longitudinal force is applied. By this mechanism the bisacromial diameter is shortened because one of the shoulders descend first through the pelvic cavity which causes the shoulders to pass through the pelvic cavity in an oblique manner until it begins to pass through the pelvic outlet. Were the shoulders to descend through the pelvic cavity parallel to the planes of the pelvic cavity it would meet with a greater resistance from the bony pelvis and the soft tissues of the pelvic cavity. The posterior shoulder normally becomes the pivot for the oblique descent of the shoulders until the anterior shoulder is rotated and descends to and under the symphysis pubis when the pivot for the descent and rotation of the posterior shoulder is changed to the anterior shoulder.

*The Mechanism of the Shoulders in Occiput anterior position.* With the onset of the second



stage of labor the anterior shoulder (the shoulders or the bisacromial diameter are in the "pubo-sacro-iliac diameter") is found in the region of the superior border of the symphysis pubis. After the delivery of the fetal head the anterior shoulder may be arrested for some minutes at the symphysis pubis until the uterine musculature is readjusted by retraction of the upper uterine segment to the fetal body. When the uterine musculature has readjusted itself the rotatory mechanism of the uterus causes the anterior shoulder to be rotated into the oblique diameter, and is then rerotated into the anteroposterior and descends to the pubic arch.

The posterior shoulder remains in the region of the "ilio-alar fossa" and acts as the pivot for the descent and rotation of the anterior shoulder. The promontory of the sacrum prevents the posterior shoulder from rotating into the posterior portion of the anteroposterior diameter of the pelvic inlet. When the anterior shoulder has descended and rotated into the anterior portion of the anteroposterior diameter under the symphysis and in the pelvic outlet, the posterior shoulder descends and is rotated into the posterior portion of the anteroposterior diameter in the wide pelvic plane for the mechanism of delivery.

The principles underlying the dystocia of the shoulders in vertex presentations consist of two factors, a defect in the movements of descent and internal anterior rotation of the shoulders, and the mechanism resulting thereof. In vertex presentations the shoulders are arrested in the "pubo-sacro-iliac diameter" at or above the pelvic inlet. This is the normal position of the shoulders in many instances after the head is delivered in the second stage of labor. Therefore, in order to bring the anterior shoulder down into the pelvic cavity after the head is delivered, it is necessary to change the shoulders (bisacromial diameter) from the "pubo-sacro-iliac diameter" into one of the oblique diameters. If we attempt to deliver the anterior shoulder from the "pubo-sacro-iliac diameter" into the anteroposterior diameter by the usual method the anterior shoulder is impinged against the upper portion of the symphysis pubis which on forcible traction on the fetal head may result in serious trauma to the child by stretching of the brachial plexus, the cervical vertebrae, or to the soft tissues of the fetal neck.

Sever,<sup>3</sup> and Clark, Taylor and Prout<sup>4</sup> have demonstrated that traction and forcible separation of the head and shoulder puts the upper cords, fifth and sixth cervical cords and the suprascapular nerve of the brachial plexus under dangerous tension. This tension may be so great that the upper cords stand out like violin strings. The degree of traction and forcible attempt in bringing the presenting shoulder down and under the symphysis pubis will depend whether the upper cords are only stretched or it may also involve the lower cords (seventh and eighth cervical cords and the first thoracic nerve). Bullard<sup>5</sup> writes that the brachial plexus is stretched when the presenting shoulder is caught behind the symphysis pubis, and reports 43 cases of injury, of which 40 cases were in vertex and 3 cases in breech presentations. Bailey<sup>6</sup> states that haste in the delivery of the shoulders is an important factor in brachial plexus paralysis. Fairbanks<sup>7</sup> is in favor of the traction theory, and reports 40 cases of brachial plexus paralysis of which 32 cases were in vertex and 8 cases in breech presentations. Schumacher<sup>8</sup> reports 93 cases of brachial plexus paralysis of which 50 cases were in vertex and 43 cases in breech presentations.

The location of the injury to the brachial plexus will depend upon whether traction is made for the anterior or posterior shoulder in the delivery of the shoulders after the fetal head is delivered.

I have incorporated Sever's analysis of 471 collected cases of brachial plexus paralysis in order to emphasize its frequency in vertex presentations. (Table 1.) It is generally considered that brachial plexus is mainly traumatized in breech presentations. Sever has tabulated 219 cases following vertex presentations, and 186 cases in which the presentation was not recorded. So whatever number we take from the 186 undiagnosed presentations will demonstrate that more than 50% of brachial plexus paralysis will complicate vertex presentation. Fairbank's and Bullard's experience show that the brachial plexus paralysis predominate in vertex presentations. The forceps and the direct pressure on the brachial plexus does not appear to play an important role in brachial plexus paralysis, but traction and forcible separation of the head and shoulders after the delivery of the fetal head is due to a delay in the movement of the rotation

of the shoulders from the "pubo-sacro-iliac diameter," into its respective oblique diameter, constriction ring dystocia, large fetus, pelvic neoplasms, faulty mechanism of delivery and undue haste in attempting to deliver the shoulders as the most important etiological factors concerned in the brachial plexus paralysis.

The normal relation of the fetal cervico-spinal vertebrae, during the stage of fetal expulsion, is such that each vertebra rests above and below on other vertebrae through the intervertebral discs which architecture brings about a definite protection to the vertebrae in longitudinal presentations. This is a physiological requirement for birth in that it prevents trauma to the structures of, and those related to the fetal cerebro-spinal column. This physiologic requirement is normally brought about in the normal mechanism of labor by the physiology of the uterus in bringing about the normal sequence of the movements of the mechanism of labor, thereby, causing the fetal cervico-spinal vertebrae to be in close apposition to each other while the fetus is passing through the uterovaginal canal. The postural state of the fetus is due to the fetal postural mechanism which causes the fetus to maintain a state of flexion of the head and body during a uterine contraction. In the normal expulsion of the fetus the spinal column, muscles, nerves, and blood-vessels are at no time under tension in either a cephalic or podalic delivery.

This mechanism of the physiology of the cerebrospinal column is well demonstrated by the experiments of Sever with dead fetuses to show the manner in which excessive traction on the fetal head will cause a disturbance of the normal protective mechanism of the structures related to the fetal cerebrospinal column. Excessive traction on the fetal head may cause separation of vertebrae which may lead to dislocations and fractures of the vertebrae, stretching or tearing of the spinal nerves, particularly the brachial plexus, and laceration and tearing of muscles which may be associated with hemorrhage into the muscles, intervertebral discs, and the spinal column by rhexis in either cephalic or podalic presentations.

When the shoulders (bisacromial diameter) are above the pelvic inlet and in the "pubo-sacro-iliac diameter" the posterior shoulder is in relation to the "ilio-alar fossa." Traction on

the child's head to bring the anterior shoulder down and under the symphysis pubis will displace the posterior shoulder laterally into the "ilio-alar fossa." If the shoulders are in the "pubo-sacro-iliac diameter" and the posterior shoulder below the brim of the pelvis at the sacroiliac synchondrosis, traction on the fetal head will fix the posterior shoulder against the posterolateral wall of the pelvic cavity, so that a great deal of force will be necessary to bring the anterior shoulder directly down and under the symphysis pubis for the delivery of the anterior shoulder. When the posterior shoulder is below the brim of the pelvis in either the oblique or "pubo-sacro-iliac" diameter an attempt to bring the anterior shoulder down and under the symphysis pubis will lead to an impaction of the shoulder, because the shoulders will have to pass through the pelvic cavity parallel to the planes of the pelvic cavity instead of passing through the pelvic cavity in an oblique manner. This is for one of the shoulders to act as a pivot for the other shoulder in an oblique direction after the shoulders have rotated into its oblique diameter. Therefore, the mechanism to initiate for the delivery of the shoulders is first to bring the anterior shoulder down from the anterior portion of the "pubosacro-iliac diameter" into the oblique diameter which will place the shoulders (bisacromial diameter) in its respective oblique diameter, and will place the bisacromial diameter obliquely in the pelvic cavity, so with the least resistance from the bony pelvis and the soft tissues of the pelvic cavity they will undergo the normal movements of descent and internal anterior rotation by a "spiral movement" to under the symphysis pubis and into the anteroposterior diameter of the pelvic outlet for its passage through the pelvic cavity which is the normal mechanism of the delivery of the shoulders.

#### *Management of the Delivery of the Shoulders.*

After the fetal head is delivered, we should wait for some minutes to allow the uterine musculature to readjust itself by further retraction. In many instances the retraction of the uterus keeps pace with the movements of descent and internal anterior rotation of the fetal head, so that the anterior shoulder is found to be under the symphysis pubis and in the pelvic outlet immediately after the delivery of the fetal head. In other instances the fetal head is delivered and after waiting for some minutes, we find that



external restitution has not taken place or the anterior or the posterior shoulder has not descended into the anteroposterior diameter of the pelvic outlet after the head is delivered, but is arrested in the "pubo-sacro-iliac diameter." It is in this situation that we must initiate by *art* the normal mechanism of the shoulders in order to prevent undue trauma to the fetal neck from faulty delivery of the shoulders. The retraction of the uterus brings the fetal body in relation to the uterus whereby the uterus is able to bring into play the physiologic function of the uterus in bringing about the normal movements of descent and internal rotation of the fetus.<sup>2</sup>

The first requirement after the delivery of the fetal head and waiting for some minutes is the diagnosis of the diameter that the shoulders are in. The management will depend upon whether the shoulders are in an oblique or in the "pubo-sacro-iliac diameter." The diagnosis is made by a vaginal examination with two fingers of one hand, index and middle, in palpation of the anterior shoulder in the region of the posterior aspect of the pubic arch or higher on the posterior wall of the symphysis pubis, or in the right or left anterior portion of the pelvic cavity. When the shoulders are in the oblique diameter the fetal head is grasped by the hands at the chin and occiput with the sagittal suture in the transverse diameter. Slight traction is made slightly downward and may, also, be aided by slightly twisting the fetal head (chin) upward in order to initiate the normal rotation of the anterior shoulder from its oblique diameter into the anteroposterior diameter whereby the anterior shoulder will descend down and under the symphysis pubis in a "spiral movement." The shoulders are now at the pelvic outlet, and if too great resistance is met with, it is safer to pass an index finger into the anterior or posterior axilla and deliver a shoulder by pressure rather than by excessive lateral traction of the fetal neck. If the shoulders are in the anteroposterior diameter at the pelvic outlet the above maneuver without twisting of the fetal head is sufficient.

When the shoulders are in the "pubo-sacro-iliac diameter" or the anterior shoulder is at the superior border of the symphysis pubis, it is necessary to rotate the anterior shoulder into its respective oblique diameter before traction is begun for the delivery of the shoulders. After

waiting for some minutes the following methods are in order.

First, a trial traction is made as described which in many instances will succeed in bringing the shoulders into the pelvic outlet. If too great resistance is met with the second method is necessary.

Second, the child's head is grasped as described above. Slight lateral traction of the fetal head is made slightly downward and medialward by slightly twisting the fetal head anteriorly by directing the occiput anteriorly towards the anterior portion of the oblique diameter, so that the anterior shoulder will rotate into its respective oblique diameter, viz., in O.L.A. the occiput is slightly twisted upwards and to the left. At the same time that traction is applied to the fetal head pressure is made by the hand of an assistant over the hypogastric region which is over the anterior shoulder toward the right or left in order to direct the shoulder into its respective anterior portion of the oblique diameter. If this maneuver is accompanied with too great resistance force should not be used, but rather suspect that the shoulders are impacted.

When the shoulders are impacted, it implies that the posterior shoulder is below the brim of the pelvis at the sacro-iliac synchondrosis and the bisacromial diameter is parallel to the planes of the pelvic cavity. This type of shoulder dystocia is not entirely due to a large child, but in many cases to an impaction. If an attempt is made to forcibly bring the anterior shoulder through the pelvic cavity it may cause death of the child, or permanent or temporary injuries to the brachial plexus, cervical vertebræ, or to the soft tissues of the fetal neck. Therefore, in impacted shoulders it is necessary to displace one of the shoulders upward and out of the pelvic inlet, rotate the shoulders into its oblique diameter as described above which will permit the shoulders to pass through the pelvic cavity obliquely instead of being parallel to the planes of the pelvic cavity in its descent through the pelvic cavity.

I am convinced that a great deal of trauma is done to the brachial plexus, the cervical vertebræ and to the soft tissues of the fetal neck by the excessive traction in attempting to bring the anterior shoulder down and under the symphysis pubis from its position in the "pubo-sacro-iliac diameter" for the mechanism of delivery. This

probably is the explanation for those cases of brachial plexus, dislocations and fractures of the cervical vertebrae and trauma to the soft tissues of the neck in which it appears that the mechanism of the delivery of the shoulders were normal.

*Summary.* The normal mechanism of the shoulders is the arrest of the shoulders (bisacro-mial diameter) in the "pubo-sacro-iliac diameter." After the delivery of the fetal head one of the acromium processes becomes the point of direction for the movements of descent and internal anterior rotation of the body of the fetus which brings the shoulders into its respective oblique diameter, and by a "spiral movement" is brought down and under the symphysis pubis into the anteroposterior diameter of the wide and outlet planes of the pelvis at which time by our *art* we should deliver the shoulders. The movements of descent and internal anterior rotation is purely due to the physiology of the uterus, the fetal postural mechanism, and the soft tissues of the pelvic cavity and the bony pelvis playing a secondary role in the mechanism involved. The bony pelvis and the soft tissues of the pelvic cavity are the primary factors in dystocia in the delivery of the shoulders.

The forcible traction of the fetal head in bringing the anterior shoulder directly down from the superior border of the symphysis pubis into the anteroposterior diameter of the wide and outlet planes of the pelvic cavity is an unnatural or faulty mechanism in the delivery of the shoulders and is potentially dangerous on account of the probable injury to the brachial plexus, cervical vertebrae and the soft tissues of the fetal neck. The maneuvers described are physiologic or natural, and the mechanism that we should attempt to follow. Once the fetal head is delivered haste is unnecessary in extracting the child.

#### CONCLUSIONS:

1. A new diameter is presented, the "pubo-sacral-iliac diameter" which is the diameter the shoulders are normally arrested in anterior cephalic presentations.

2. The posterolateral portion of the iliac fossa at the sacroiliac synchondrosis is obstetrically designated as the "ilio-alar fossa" which allows the posterior shoulders to pass onto when necessary.

3. Dystocia in the delivery of the shoulders

in vertex presentations is due to a disturbance of the physiology of the uterus which delays the normal mechanism of the movements of descent and internal anterior rotation of the shoulders with the result that the shoulders are not rotated into its respective oblique diameter, but are arrested in the "pubo-sacro-iliac diameter."

4. The shoulders descend and rotate from the "pubo-sacro-iliac diameter" into an oblique diameter, and by a "spiral movement" descends and rotates under the symphysis pubis into the anteroposterior diameter of the pelvic outlet. The shoulders should pass through the upper half of the pelvic cavity in an oblique manner.

5. The attempt to bring the anterior shoulder from the superior border of the symphysis pubis directly down and under the symphysis pubis is not a normal mechanism and predisposes the fetal neck to severe trauma. The shoulders should be properly maneuvered into its respective oblique diameter, before an attempt is made to bring the shoulders through the pelvic outlet.  
55 East Washington Street.

TABLE I. CONDITIONS EXISTING AT THE TIME OF BIRTH (Sever)

Boys .....	235
Girls .....	236
Total.....	471
Right arm affected.....	272
Left arm affected.....	186
Both arms affected, upper arm type.....	2
Both arms affected, lower or whole type.....	1
Both arms affected, type not noted.....	6
Upper arm type.....	400
Lower or whole arm type.....	64
Difficult labor .....	418
Ether used .....	363
Forceps used .....	317
Normal labor .....	32
Asphyxiation of child.....	102
Head presentation (including face).....	219
Breech presentation (including foot and version).....	66
Position not known.....	186
Fractured clavicle .....	14
Arm broken .....	3
Cord around the neck and arm.....	2
Cord around the neck.....	2
Pupils unequal .....	16

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## THE FAMILY DOCTOR

Now as formerly the most important Specialist  
in Medical Practice.

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Northwestern University Medical School

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"In his researches, he found that the great world was wholly engrossed by a few practitioners who had arrived at the summit of reputation, consequently were no longer obliged to cultivate those arts by which they rose: and that the rest of the business was parcelled out into small enclosures, occupied by different groups of personages male and female, who stood in rings, and tossed the ball from one to another, there being in each department two sets, the individuals of which relieved one another occasionally. Every knot was composed of a waiting woman, nurse, apothecary, surgeon and physician, and sometimes a midwife was admitted into the party; and in this manner the farce was commonly performed.

"A fine lady, fatigued with idleness, complains of the vapors, is deprived of her rest, though not so sick as to have recourse to medicine; her favorite maid, tired with giving attendance in the night, thinks proper, for the benefit of her own repose, to complain of a violent headache, and recommends to her mistress a nurse of approved tenderness and discretion; at whose house (in all likelihood) the said chamber-maid hath oft given the rendezvous to a male friend. The nurse, well skilled in the mysteries of her occupation, persuades the patient, that her malady far from being slight or chimerical, may proceed to a very dangerous degree of the hysterical affection, unless it be nipped in the bud by some very effectual remedy: then she recounts a surprising cure performed by a certain apothecary, and appeals to the testimony of the waiting woman, who being the gossip of his wife, confirms the evidence and corroborates the proposal. The apothecary being summoned, finds her ladyship in such a delicate situation, that he declines prescribing, and advises her to send for a physician without delay. The nomination of course falls to him, and the doctor being called, declares the necessity for immediate venesection, which is accordingly performed by the surgeon of the association.

"This is one way of beginning the game: though the commencement often varies, and sometimes the apothecary, and sometimes the physician, opens the scene; but be that as it will, they always appear in a string, like the flight of wild geese, and each confederacy maintains a correspondence with a particular undertaker."

It is only the terminology and language that differentiates this from a modern article. It is a quotation from the *Adventures of Ferdinand, Count Fathom*, written by Dr. Tobias George Smollett, published in 1753.

But specialism did not begin in the 18th century. Osler states:

"Medicine may be said to have begun with specialists. The Ebers papyrus is largely taken up with the consideration of local diseases, and centuries later we find in Greece certain individuals treating special ailments; and Aristophanes satirizes a 'rectum specialist' in a way not unlike our comic journals would 'poke fun' at an oculist or aurist. The tail of our emblematic snake has returned into its mouth; at no age has specialism been so rife. It is unnecessary to remark that the public, in which we live and move, has not been slow to recognize the advantages of a division of labor in the field of medicine. The desire for expert knowledge is, however, now so general that there is grave danger lest the family doctor should become, in some places a relic of the past. It must, indeed, be a comfort to thousands to feel that in the serious emergencies of life expert skill is now freely available."

The public of today has never heard of the specialists of ancient Egypt or Greece. It is not satisfied with a type of medical service comparable to that described by Smollett in the England of the 18th century. They idolize the services rendered by the general practitioner of the 19th century. Why should this be so? What was there in the services rendered by the general practitioner of the last century that is lacking in the services rendered by modern general practitioners or specialists, practicing as individuals or as members or employees of firms or corporations?

The average physician of the 19th century in the United States, attended a district school, and sometimes a secondary school, rarely a college before commencing the study of medicine. In many instances, his entire medical training was obtained by working under a preceptor. Others in addition to a minimum of about sixteen months under a preceptor, attended a course of lectures in a medical school for one or two terms. If they attended for two terms they attended the same lectures twice. The Medical Department of Lind University which became the Chicago Medical College and later Northwestern University Medical School instituted a graded curriculum in 1859, Harvard about 1872, and other schools followed suit during the next twenty-five years. The education received was in no way comparable with that of the modern graduate partly because of the type of instruction but more especially because our knowledge of disease has expanded so rapidly during the last fifty to seventy-five years. How can it be that the more scientific medicine of today that has resulted in such reductions in morbidity and mortality, is not as satisfactory to the public

as the services of the idolized general practitioners who seem to us to have been "jacks of all trades but masters of none."

But were they masters of none? Are they remembered because they were general practitioners or because they were really specialists in an unrecognized and forgotten field?

Oliver Wendell Holmes, poet, essayist and physician, who long opposed the lengthening of the courses of lectures in the medical schools, which my grandfather so ardently advocated, appreciated the situation when in 1867 he said in address to a class in the Harvard University Medical School:

"The idea is entertained by some of our most sincere medical brethren, that to lengthen and multiply our winter lectures will be of necessity to advance the cause of medical education.—As this school could only lengthen its lecture term at the expense of its "Summer Session" in which more direct, personal, and familiar teaching takes the place of academic discourses, and in which more time can be given to hospitals, infirmaries, and practical instruction in various important specialties, whatever might be gained, a good deal would certainly be lost in our case by the exchange.—A medical school is not a scientific school, except just so far as medicine itself is a science. On the natural history side, medicine is a science; on the curative side, chiefly an art. This is implied in Hufeland's aphorism: 'The physician must generalize the disease and individualize the patient.'"

In the meantime, "the winter term" of lectures has been lengthened from three to eight or nine months and the "summer term" has been omitted, the course extended to four years; the preceptorship eliminated. The results of this change are known to all. The modern graduate knows much more of the science of medicine, infinitely less of the art. And all that he knows of medicine, he has learned from specialists in limited fields, from the viewpoint of such specialists. Today the medical schools are turning out, not general practitioners, but general specialists, many of whom believe themselves capable without further training or experience to practice any or all of these specialties: men who are interested in the diagnosis and treatment of disease but who fail to consider the patient. This situation is well delineated in the following quotations:

C. Macfie Campbell stated: "Within the last few decades, there has been a growing recognition that the disease has been overemphasized; that the patient has been somewhat neglected. Physicians with great experience and much human sympathy have been dismayed

by the impersonal attitude of scientifically trained physicians who are so dehumanized that they treat their patients with the precision and detachment with which they treat their experimental guinea pigs and mice. Such an attitude may bear the hall-mark of science and therefore be beyond criticism. This attitude toward the problems of medical practice may claim the authority of science only if science is very narrowly interpreted as being confined to the precincts of the laboratory and only if the actual phenomena of human nature be looked upon as outside the sphere of scientific observation. To do justice to his patients, the physician must take into consideration not only the precise laws of the laboratory but also the laws which regulate the reactions of man to his environment even though these laws cannot be formulated in mathematical or precise physical terms."

And George R. Minot wrote: "A considerable fraction of the successful care and treatment of patients and, undoubtedly, the prevention of much illness is to be identified with the proper consideration of sociologic factors. The case of every patient who consults a physician has a medical social aspect. This social component of medicine may vary widely in importance, but frequently it plays a major role in diagnosis, prognosis and treatment and in the prevention of disease and unhappiness. Everyone is constantly confronted with social problems which he settles without great difficulty or to which he soon adjusts himself: but the problems may become of medical significance, so that as Parry of Bath indicated late in the eighteenth century, it is often more important to know what kind of a patient has a disease than what disease the patient has. Lack of thoroughness and imperfect skill are causes of many errors in the prevention, diagnosis, and prognosis of disease and in the treatment of patients. The diagnosis of the patient is often neglected when the diagnosis of the disease is considered in detail."

It seems that one may safely deduce that the difference between the old time general practitioner who rendered service that was satisfactory to the public differed from the modern general specialist whose services appear to be less satisfactory in that he particularized the patient and generalized the disease instead of generalizing the patient and particularizing the disease. As much, if not most, of our therapy is still symptomatic and not specific this difference is of paramount importance. One may conclude that the old time general practitioner is remembered because he was a specialist in family practice. But where do we find family doctors today?

Generally speaking, not in the metropolitan or urban areas, not in the clinics, not on the faculties of our medical schools; but in some rural communities. It is noteworthy that physicians in such communities have less competition from irregulars than do those practicing in larger com-



munities; that, though they do not practice as scientific medicine, do not rely as much on clinical and x-ray laboratories or consultants as do their confreres in the cities, they give greater satisfaction to their patients.

In impersonal clinics, free, part pay and full pay, the patient who has the disease receives little consideration. Yet medical social workers arose as physicians, working in such clinics, appreciated his importance. These social workers are aware of his importance and of the fact that the disease is considered almost exclusively by the teachers of medicine and by those practicing in organized clinics. It almost seems as if they fostered impersonal medicine as exemplified in organized group clinics to insure a growing field for medical social work. But even the most scientific physicians with the aid and cooperation of the most able medical social workers cannot render services as satisfactory to the patient as were those of the old family doctor. Yet the clinic, the organized group of specialists in limited fields of practice, can engage in general practice and render service incomparably superior to that furnished by an individual attempting to cover the whole field of medical practice.

The solution of the problem of medical service seem then to depend upon the revivification and recognition both by the public and by the profession of the specialty of family practice. As Osler said: "The family doctor is the man behind the gun, who does our effective work. That his life is hard and exacting: that he is underpaid and overworked: that he has but little time for study and less for recreation—these are the blows that may give finer temper to his steel, and bring out the nobler elements in his character."

This family doctor of the twentieth century should be well grounded in the fundamental sciences; should be an able diagnostician in all fields of medicine and able to care for the eighty odd per cent. of illness that does not properly require the service of the qualified specialist in a limited field of practice; should know when the services of such specialists are indicated; should thoroughly understand and fully appreciate preventive medicine and its practice. He need not know the technical procedures of surgical therapy except asepsis and first aid but must know what surgical therapy can accomplish and when it is indicated. Similarly he need not know the technique of all laboratory, diagnostic

or therapeutic procedures that may be used in diagnosing and treating all of the diseases classed under the medical specialties though he should appreciate their significance and the indications for their use.

If the revivification of the specialty of family practice is the solution of the problem of devising ways and means of furnishing to all of the public the best of medical service all of the time; the medical curriculum must be changed. The undergraduate medical course must be directed to the education of family doctors and not as at present to the education of general specialists. Specialism in a limited field should be restricted to those doctors of medicine who as a result of additional training and education have proven themselves qualified for such practice.

There is an aphorism "The best defense is a strong offense." To date the medical profession in defending private practice against the advocates of impersonal group practice and "state medicine" has not made use of an offensive. It has given the impression the status quo is all that could be desired. If this were the case, there would be infinitely less discussion of the costs of medical care, etc. Would we not strengthen our position by admitting that all was not well? By doing what we can to remedy the situation in a manner that will best produce the desired results?

If this analysis of the situation with respect to the rendering of medical service is correct, the medical profession should undertake a campaign to convince both the doctors of medicine and the public that the family doctor is not a general practitioner, a jack of all trades and master of none, but the most fundamental if not the most important of specialists, "the man behind the gun."

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## TREATMENT OF HEAD INJURIES

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The treatment of head injuries is gradually becoming more or less standardized and although the mortality rate is still high, much has been done to reduce it by means of conservative methods. The general practitioner is commonly called on to take care of these cases and it must have

been a source of confusion to him in the past to have been presented with so many conflicting opinions from experts. In the short time at our disposal, it will only be possible to give a very brief resume of the treatment. This resume should be considered to be a mixture of the various methods adopted by surgeons who are best trained in matters dealing with the nervous system. Naturally the best results will be obtained by the doctor who understands most thoroughly what is taking place within the cranial cavity after injury. Each case varies from the next and insofar as the condition varies so should the treatment be altered to suit the needs of the case. Nevertheless certain generalizations should be possible and for the purpose of this discussion the cases will be divided into the following three groups:

1. Patients with a fatal injury.
2. Patients with a non-fatal injury.
3. Patients who may have a fatal or a non-fatal injury.

Although this classification seems to involve an element of prescience on the part of the medical attendant, the actual cases admitted to the emergency service of a hospital will fall readily into these groups.

It is necessary to mention that the fracture of the cranial bones is not in itself a matter of great importance, but that the real essential is the damage to the underlying brain and its vessels. It is obvious also that a blow sufficiently severe to fracture the skull may have the necessary force to cause severe cerebral damage. In addition, it should be mentioned that the word "shock" will not appear in this paper as its use is so bizarre and its mechanism is not understood in head injuries. The word collapse will be used instead.

A very brief clinical picture of the patients in the three groups is given. They will be readily recognizable by anyone with even a limited experience of these cases.

1. *The Patient with a Fatal Injury.* He is brought in in profound collapse, very severely injured—there may be multiple injuries. He is in deep coma and is obviously in *extremis*. He either dies on the way to the ward or within the first few hours after his arrival there.

2. *The Patient with a Non-fatal Injury.* He is brought in in a semi-conscious condition. He may be in a slight degree of collapse. He is

very restless, irritable and irrational—repeated painful stimuli cause an appropriate response. The patient may be relatively conscious but dazed and may be able to talk coherently.

3. *The Patient Who May Have a Fatal or a Non-fatal Injury.* The coma is relatively deep; there is a marked degree of collapse; the reflexes are absent; the pupils react very poorly to light; painful stimuli may cause movements of the extremities; the pulse after a few hours becomes slow and bounding; the blood pressure is fairly high and shows a tendency to rise—he is liable to be in this condition for many hours and even days.

*Treatment.* The Severe and Probably Fatal Head Injury. For the first few hours the treatment should be expectant. The first consideration is to treat the collapse. This is best done by (a) application of external heat, i.e., pack the patient with hot-water bottles outside a blanket. (b) Give caffeine sodium benzoate  $7\frac{1}{2}$  grains when occasion arises. (c) Start fluids subcutaneously—either 5% glucose in saline or normal salt solution; do not give over 1000 cc. (d) If the solution is available, either 400 cc. of 25% glucose in saline or 500 cc. of 20% glucose in saline can be given intravenously to counteract collapse and cerebral edema. If the patient lives longer than a few hours he should be treated as in class 3.

The Patient with a Non-fatal Injury. The condition of the patient with this type of injury is comparatively good. He responds in varying degrees to loud questioning, he is irrational and restless. His blood pressure and pulse are relatively normal and he moves all his extremities.

Here again the treatment should be symptomatic and expectant. (a) Give sedatives such as 1 grain of codeine by hypodermic injection or 2 grains of codeine by mouth—or 1.5 grain of phenobarbital. These can be given every four hours as occasion arises. Never give morphine to a patient with a head injury as it depresses an already depressed respiratory center. As a last resource, paraldehyde may be given — a drachm repeated every fifteen minutes if necessary. Amytal and, to a lesser degree, nembutal appear to cause delayed excitement in some persons and therefore should not be used. (b) Apply one or more kinds of restraint—either fasten the legs in anklets or have side boards put on the bed. Many of these patients are so restless that



they fall out of bed or they are so disoriented that they may wander around the ward and even fall out of windows or down stairways. Not a few of them are under the influence of alcohol. These patients should be observed several times a day to determine whether they move all their extremities and to guard against the insidious onset of coma. (c) When the patient is tractable and quiet a lumbar puncture may be done to ascertain the presence or absence of blood in the spinal fluid. The treatment of a patient with blood in the spinal fluid must be more rigid and the prognosis more guarded than in a patient whose cerebrospinal fluid is clear. (d) Rest in bed—the patient with bloody spinal fluid should usually be kept in bed a week or ten days after he is symptom-free, whereas a patient with clear fluid may be allowed up when he is symptom-free.

The Patient in Whom the Prognosis is Indeterminate. Collapse should first be treated as outlined in the care of the patient with a fatal injury. After a few hours the patient will present somewhat the following picture: Fairly deep coma—pupils equal but react sluggishly, if at all, to light—the reflexes are present—the pulse is slow and bounding and the blood pressure is relatively high—there is usually involuntary urination but retention may occur. The patient's condition remains unchanged for the first six to twelve hours and his fate seems to hang in the balance. The patient has enough resistance to live several hours and the injury is not sufficiently fulminating to cause death quickly; both the resistance of the patient and the less severe nature of the injury indicate that well-planned therapy may be of material help. The primary cause of death is increased intracranial pressure with terminal failure of the medulla. The increased intracranial pressure is due in the first few hours to hemorrhage and later to a combination of edema and hemorrhage. Anything which can be done to relieve the increased intracranial pressure will relieve the medulla and prolong the life of the patient. The life of the patient may be prolonged until the increased intracranial pressure has been permanently relieved and the medulla is no longer in danger of being compressed.

Active treatment is directed toward the relief of increased intracranial pressure:

(a) Intravenous injection of hypertonic fluids—400 cc. of 25 per cent. or 500 cc. of 20% glucose should be injected twice a day—say at noon and midnight.

(b) Lumbar puncture should be done at say 6 A.M. and 6 P.M. This can be most scientifically done with a spinal manometer and it is best to halve the pressure. If a manometer\* is not available 40 or 50 cc. of bloody spinal fluid should be removed. Naturally the patient who is draining spinal fluid from the ear or nose will not need lumbar puncture.

(c) Decompression—if after forty-eight hours of the above treatment the patient's condition is still unchanged, right subtemporal decompression should be considered. The decompression should be wide (3 inches in diameter) with a wide dural opening.

(d) General management: 1, Elevate head of the bed. 2, Change the patient's position frequently. 3, Chart pulse and blood pressure frequently (at least every hour) and preferably on the same chart. If they remain parallel the prognosis is temporarily good. If they move apart, the pressure within the cranial cavity is increasing and drastic measures must quickly be adopted. If they then run rapidly together, i.e., falling blood pressure and rising pulse associated with deep coma, the medulla has failed and the prognosis is hopeless. 4, Give appropriate cardiac stimulants. 5, Give appropriate sedatives for restlessness—never morphine. 6, Observe the patient frequently and by supraorbital pressure ascertain whether he moves all four extremities, and attempt to estimate by his reactions to loud questions whether his state of consciousness is improving or becoming worse.

Many other methods of reducing intracranial pressure have been suggested but those mentioned above appear to be the most generally useful at this time.

*Extradural Hemorrhage.* The medical attendant is in constant fear that he may miss a case of middle meningeal hemorrhage. The classical description of this syndrome includes an injury to the head with unconsciousness lasting from a few minutes to a few hours. There is then a

\*A manometer can be made with a piece of narrow bore glass tubing 33 cm. long; bend the last 3 cm. to a right angle and apply about 4 to 5 cm. of rubber tubing with an adapter for the spinal puncture needle. Halve the distance the bloody fluid rises in the glass tubing.

return to consciousness and possibly to normality, though usually the patient is excited and restless. This lucid interval lasts for a few hours to be followed by gradually increasing coma and death. While this description may hold true for some cases, there are many cases of extradural hemorrhage in which it does not occur.

On *a priori* grounds a lucid interval need not occur, for an injury sufficiently severe to cause an extradural hemorrhage may be severe enough to cause an intradural hemorrhage and cerebral edema. Because of the latter the patient may never regain consciousness as in the classical description and unless he be carefully observed the evidence of extradural clot may go unnoticed. Many cases every year go through this atypical syndrome and a few of them come to autopsy. In about 10% of cases of head injury coming to autopsy, extradural hemorrhage is regarded as the principal cause of death. It seems highly improbable that, if the patient had presented the classical picture, they would not have been recognized.

It appears then that not all cases, perhaps not even the majority, of extradural hemorrhage go through what has been described as the typical pattern. The only reliable indication appears to be the gradual onset of hemiplegia whether the patient has a lucid interval or not. The hemiplegia practically always develops in the first forty-eight hours. Hence, it is necessary to be sure that the patient moves all four extremities on admission and that he continues to be able to move them. In the unconscious patient this can be ascertained by firm pressure on the supraorbital nerve at which the patient will make more or less purposeful attempts to remove the painful stimulus. If hemiplegia be present, the affected side will not be moved. This early onset of hemiplegia combined with deepening coma and possibly a dilated pupil on the side of the lesion, constitutes the most reliable indication for operative interference. Should the spinal fluid be clear in the presence of this syndrome, the hemorrhage is almost certainly extradural; but if the spinal fluid be bloody it is of no diagnostic value for, as mentioned above, a violence sufficient to cause extradural bleeding may be sufficient to cause intradural bleeding. Extradural hemorrhage has occurred without frac-

ture of the cranial bones. The presence or absence of extradural hemorrhage can easily be ruled out by placing a burr hole in the appropriate part of the skull under local anesthesia.

Hemiplegia or monoplegia may be caused by depressed skull fractures but, of course, in these cases the paralysis is present from the moment of the injury.

*Injury to the Cranial Bones.* The injury to the cranial bones in by far the majority of cases is at the base of the skull. The reason for this can easily be seen by examining the base of the skull and noting the thinness of it and the many foramina which weaken it in this region.

Fractures of the vault are not nearly so common and they fall into two types:

(a) Linear fracture, simple or compound.

(b) Depressed fracture, simple or compound. Comminution, in fractures of the cranial bones, does not present a special problem. Depressed fractures are nearly always compound.

(a) The treatment of simple and compound linear fractures depends on the condition of the patient and the presence or absence of x-ray pictures. Collapse should be treated first and after the collapse has passed off, a scalp wound may receive attention and if while the wound is being treated it be determined that the fracture is a linear one, nothing further need be done. X-ray pictures may be taken later when the patient's condition warrants his being moved.

A simple depressed fracture may be elevated, if it be thought necessary, any time in the first few days after the accident. In adults depressed fractures, especially in the frontal region, frequently give rise to epilepsy and it is therefore wise to elevate them unless there is a definite contraindication.

(b) Compound depressed fractures should be operated upon as soon as collapse has passed off, or operation should be delayed until the scalp has healed and sepsis is no longer considered to be present. This usually means waiting two or three weeks. Operations on patients who may have a fatal injury are not indicated. The procedure can be carried out under local anesthesia by means of a field block at a distance from the injured area. The original laceration should be extended to obtain a good view of the bones—depressed bone should be elevated and fragments removed. If the dura is intact, nothing further



should be done—if the dura be lacerated, a drain should be inserted through it and left for forty-eight hours. It is useless to follow injuries into brain tissue unless there be definite evidence of a foreign body near the surface.

The treatment of the scalp wound consists of shaving the hair at least 1 inch round the cut and cleansing it thoroughly with alcohol and iodine. The edges should be freshened by clipping off necrotic tissue with scissors, and, after examining the exposed cranial bones, the wound should be closed with a few interrupted sutures. If the sutures be well placed and the galea aponeurotica be taken in each stitch, it will not be necessary to pay attention to individual bleeding points. The scalp is very resistant to infection on account of its generous blood supply; nevertheless, care and accuracy are essential.

The treatment of brain injuries and skull fractures in children differs somewhat from that of adults. Children have the most amazing recuperative power and after collapse has passed off it is rarely necessary to do anything but observe them. Occasionally intravenous glucose and spinal puncture are indicated but decompression practically never. Simple depressed fractures are usually best left alone, at least temporarily, unless there be definite evidence of involvement of cerebral substance. Compound depressed fractures should be treated as in adults. However, frequent observation is necessary as even a child may develop an extradural hemorrhage.

#### DISEASES WHICH PRESENT SIGNS OF OVER-IRRITATION OF THE SYMPATHETIC NERVES AND THEIR TREATMENT BY X-RAYS

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Evidence of disturbances of the vegetative nervous system (V. N. S.) are found at some time in most diseases, as regulation and co-ordination of the vital processes in a human body are governed by this system which was described and named by Bichet as early as 1800. Only since the extensive morphological studies of Gaskell (1886-1889) and the physiological studies of Langley and Dickinson (1889) have

we begun to study this system with better understanding. We are now beginning to select certain diseases which may be provoked by a primary disturbance of the V. N. S. We are able already to state tentatively that a weak V. N. S. may be inherited and that such a type of patient will easily show marked disturbances initiated by shock, toxins, lack of proper internal secretions, strain of life, infection, etc. Already in 1885 Edward Long Fox was able to write a book on the influence of the sympathetics on diseases.

Personal observations from 17 years of roentgenotherapy to investigate the effect of radiation on the V. N. S. have given results which will appear new to many physicians but which may help to elucidate the origin of certain diseases as produced primarily by an over-irritation of the V. N. S. The intimately close connection of this system with the glands of internal secretion makes it more difficult to decide the primary disfunction in diseases. In other words, is it the glands of internal secretion which influence the V. N. S. or is it the V. N. S. which influences the glands of internal secretion? We believe that the study of the effect of radiation will help to solve this problem and the the purpose of this paper is to attempt to show the beneficial effect of x-ray treatment in diseases which present signs of over-irritation of the sympathetic nerves and therefore to consider the idea that, in certain diseases, the over-irritation of the V. N. S. must have been the primary cause. We think that the study of the V. N. S. has been neglected and too much emphasis has been laid to the primary effect of glands of internal secretion.

The student of the V. N. S. will be surprised to find that the English medical profession was more interested in investigating this system than that of any other country, but the British interest can be explained as the result of their colonization efforts in India.

From Indian history we find that in early Buddhist periods the Yoga cults and practices actually knew the importance of the V. N. S., and in their religious exercises, which are still practiced in this vast territory chiefly among followers of the northern Tantricism, the cult was taught to acquire its domination. The Tantrik Buddhists knew well the motor and sensory nerves; the V. N. S., however, was regarded as

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\*Deceased September 28, 1935.

the most important. The vital force of Kundalini, always illustrated as a dormant serpent, had to be aroused to ascend from a lower center finally to reach the brain. The center of this system was expressed in their drawings and statues as

condition at will. He could perspire on one arm and produce goose pimples on the other and he could even stop his heart from beating. It was, therefore, only natural that when, in my younger assistant years in the x-ray department



Fig. 1. An image interpreting in a traditional Tantrik way the essence of Kundalini teachings and illustrating the nervous systems "Ida" and "Pingala" curling around the "Sushumna" like the two serpents of the caduceus of Mercury. A succession of main psychic centers is indicated on the "Sushumna" which may be likened to the vegetative nervous system, whereas "Ida" and "Pingala" correspond to the sensory and locomotor systems.

—Painting by A. Avinoff.

the third eye. Such a person who achieved the power of control of his entire V. N. S., therefore, dominated his body by Kundalini. I had, in my student days, the good fortune to observe in the Anatomical Institute of Leipzig under Prof. Spalteholz such an individual who demonstrated with great ease the strange faculty of dominating his V. N. S. He produced contraction of the pupil in one eye and dilatation of the opposite pupil, and he could reverse the

of the University of Erlangen (Seitz and Wintz) the following phenomenon occurred, I attributed it to the effect of roentgen rays on the V. N. S. A boy was sent to the department for x-ray treatment for multiple warts on both hands. Only one hand received x-ray treatment, but in three weeks the warts on both hands had entirely disappeared. Disappearance of warts after a form of auto-suggestion is well known.



The distant effect of roentgen rays has been reported in the literature but no satisfactory explanation has been given. Animal experiments never gave satisfactory results because a normally functioning V. N. S. is not influenced by x-rays of therapeutic doses. The final results of laboratory experiments of isolating the vagus and sympathicus at the neck in rabbits, cats and dogs and irradiating such isolated nerve fibers demonstrated the following principles:

1. A normal sympathicus or vagus cannot be altered by x-ray in therapeutic doses.
2. An over-irritated sympathicus elicits first excitability, a condition which has been described by us as Stage I, and second, a depressing effect of radiation as Stage II, producing equilibrium or, if the dose was not sufficient, a corresponding swing toward equilibrium.

The fact, that only an over-irritated V. N. S. can be brought into balance allows us today to draw certain conclusions of the condition of the sympathicus at the moment of irradiation. For instance, if a patient receives x-ray over the pelvis and lower lumbar region for the treatment of a hypertrophic prostate and if a simultaneously existing endarteritis obliterans with a marked intermittent claudication disappears after such treatment, (Philipps and Tunic) then the explanation, which has withstood severe criticism, is that over-irritated lumbar ganglia and nerves have been brought to normal function and the over-irritated sympathicus which was the cause of the intermittent claudication is now functioning normally again. Another way to determine if a disease is connected with an over-irritation of the sympathicus is to study surgical reports where ganglionectomies, sympathectomies, trunk resections, have been reported as successful in various afflictions of the body. From careful investigation of the surgical operations on the V. N. S. and from roentgenological reports, a large group of diseases have been assembled which must be connected with or produced by an over-irritation of the sympathicus.

The recognition that a disease is connected with an over-irritation of a part of or the entire V. N. S. enables us to produce a definite improvement of such disease after x-ray therapy and it is, therefore, worth while for every physician to know this. To use x-ray therapy prior

to surgical ganglionectomy, sympathectomy, etc. should find favor because of the small and therefore harmless amount of x-ray which we advocate and also because of a high percentage of good results which makes a surgical procedure unnecessary. The remarkable correlation between internal secretion and V. N. S. has already been mentioned, but in certain instances of marked disturbances of a gland of internal secretion an underfunction of the V. N. S. exists instead of over-irritation, and this facilitates the recognition of an entirely different group of diseases.

The greatest confusion was brought about in the roentgen literature through the introduction of the term "irritation dose." In 1923, we demonstrated how the term irritation dose was used by different investigators in a most contradictory manner and we demonstrated that such "irritation" does not exist. It must be remembered that an increased irritation of the sympathicus (Stage I) is only a temporary state and it passes, in a short time, into a depressed stage (Stage II). In other words, radiation always produces depression. It is fortunate that most roentgen therapeutics today have come to the same conclusion. An interesting animal experiment was reported recently by Schatz. It is possible to produce estrus through implantation of fresh anterior pituitary lobe into infantile mice (Zondeck and Ascheim). In 100 hours after such implantation an infantile mouse has become mature with typical changes of the ovaries. If x-ray would be able to stimulate and produce that same estrus as that from the anterior pituitary lobe implantation, it should be observed in the infantile mice. Schatz, treating 40 infantile mice with different roentgen doses, was unable to stimulate ovarian production and, therefore, concluded that a stimulating dose of x-ray on such ovaries does not act as the hormone did.

Our investigation leads us first to skin diseases. That a certain group of them has been considered to be connected with an irritation of the sympathicus can be found in any textbook of dermatology. It is interesting to note that the roentgen literature reports most satisfactory results in such cases. We are more interested to find reports in the roentgen literature which speak of the indirect effect of radia-

tion; reports that did not recognize the effect of radiation on the V. N. S.

Some clinical signs are explained or accepted as being produced by an over-irritation of the V. N. S., as, for instance, trophic changes in the skin, transudation and exudation of the skin, and changes in the skin which are symmetrically situated and accompanied by itching. We remember that many medications which are applied in the form of salves have been found to subdue the itch by paralyzing the end fibers of the sympatheticus. The disappearance of itch after ultraviolet irradiation was said by Rothmann to be due to the paralyzing effect of ultraviolet on the end-fibers of the sympatheticus of the skin. Jessioneck and others found Rothmann's statement to be correct. X-ray, as we have already published in 1927, has the same direct effect but a longer and more lasting paralysis. Publications dealing with the indirect effect of roentgen radiation in skin diseases appeared as long ago as 1913. Zimmern reports curing pruritis ani and vulvae by irradiating the lumbar region and a few years later he reported that lichen planus disappeared promptly after irradiating the cervical or dorsal spine. He speaks of a "radiotherapy radriculaire" using filtered radiation and repeated treatment. Gouin and Bienvenue, using unfiltered radiation to the skin above the diseased part but corresponding to the area in which the nerves pass down to that part of the body, also reported satisfactory results and observed increased itching (Stage I) for a short time after such irradiation and before the papulae disappeared and itching stopped (Stage II). Driver, having used both techniques, comes to the conclusion that paravertebral technique with filtered x-rays gives better results. It should be said here that skin specialists, finding failure with such treatment, should remember that the better results will be obtained by using the more penetrating radiation and greater filtration because the paravertebral ganglia are rather deeply situated. Our experience with the treatment of lichen planus from the standpoint of quieting down an over-irritated V. N. S. has made us believe that an ideal roentgen technique for lichen planus has not yet been outlined. The following example might be of interest:

Mr. S. A. W., 44 years of age, referred by a dermatologist, with the exception of the face and neck, was

covered with typical lichen planus patches. The itching had made sleep practically impossible for weeks. The patient had been treated in another city over the chest and abdomen with unfiltered roentgen rays but without much benefit. This patient was treated first over the centrum and the cervical ganglia instead of the first dorsal to the sacrum paravertebrally with 250 r each field, 200 K. V. using a filter of 0.5 mm Cu and 1 mm Al over fields 7 x 18 cm in size as is customary. He received 350 r filtered through 0.5 mm Cu and 1 mm Al, 200 K. V. on each side of the neck including in this field the region of the diencephalon. When he returned the next day to continue the paravertebral treatment, he reported such improvement that we did not give it. Six hours after x-ray application the itch had stopped entirely. The redness of the skin where the itch had been the worst had subsided slightly. The patient reported by letter that from day to day he had made rapid recovery. Recurrence had not been observed in the succeeding eight months. Paravertebral treatment from first dorsal to sacrum, without raying the centrum and cervical area, would have probably resulted in a failure. In this case we apparently had to deal with a centrally regulated disturbance, manifested by lichen planus.

Stages I and II could be clearly observed in some psoriasis patients. We gave 350 r per field, two fields a day, two cervical temporal fields, two fields from 1-7 dorsal, two fields from 7th dorsal to 2nd lumbar, and finally two fields from 2nd lumbar to sacrum.

The series was repeated a second time giving another 350 r to each field. Since Stages I and II were not always clearly observed and because of the small number of patients treated in this way an official report was not made. The report of Rieva Rosh which presents 24 cases treated with 850 r to the dorsal and lumbar region is interesting since Rosh also observed increased itch in areas distant from the irradiation parts, (our stage I). Rosh believed that the x-ray treatment of the V. N. S. influenced the thymus. She reports empirically found remarkable results. The observation of Stages I and II and the final results of such treatment influences us to correlate psoriasis with an over-irritation of the V. N. S.

Castex and Camauer have indicated by three cases of ichthyosis that this also is a manifestation of an abnormal condition of the V. N. S. We suggested in 1927 to treat such diseases paravertebrally in their earliest stages. The same seems to be in its infancy.

The treatment of certain forms of eczema probably belonging to the neurodermatitis group has been described by us in 1932. We have found



during these last two years that symmetrical eczema in women of the menopause age is greatly relieved after x-ray treatment over the neck and temporal region similar to that given for menopause disturbances. Only when such application has no effect on the eczematous condition, further application from the first dorsal downward, 250-350 r to each field is given and often found to be successful. It must be left to the skin specialist to evaluate and improve the technique. The fact of paramount interest, is that, if increased irritation after radiating such distant areas is observed (Stage I), an improvement can be expected in every case (Stage II).

The explanation of the radiation effect when certain modest results in psoriasis could be observed seemed practically exhausted from looking over the literature. Irritation of the thymus, destruction of persistent thymus with x-ray, influence on the ovary, irritation of the hypophysis, and many other explanations are offered. The hopeless therapy of psoriasis made us try the paravertebral technique. As the science of skin disease had nothing to offer, our only reason to influence a supposed over-irritated V. N. S. was in the empirically found observation that heavy ultra-violet radiation was able to make psoriasis patches disappear temporarily. Based on the knowledge derived from Rothmann, the technique used in psoriasis may prove to be of value in scleroderma but it still needs careful investigation.

Time does not allow us to discuss herpes zoster and its correlation to an over-irritation of the V. N. S., but the beneficial effect of radiation is known to all. The increased itch and malaise (Stage I) which follows the x-ray therapy in a few hours leads to a more quiescent state (Stage II) and must be connected with the influence of such radiation on the V. N. S. It cannot be explained as a destructive effect of x-ray on lymph cells which have invaded the nerve sheaths. At least the Stage I, with its temporarily increased pain, cannot find satisfactory explanation by other hypotheses. Just as the results of roentgen treatment of herpes zoster are so satisfactory as again recently reported by Keichline, x-ray treatment over the corresponding ganglia in post herpes neuralgia is equally beneficial.

Diseases belonging to the medical group which

have been reported successfully treated with roentgen rays are numerous and a superficial observer might not see any uniform explanation why these apparently so different diseases should be so benefited by radiation treatment. We shall now discuss diseases which have shown improvement after paravertebral irradiation which presented distinct signs of over-irritation of the V. N. S. We would like to make the suggestions that when a combination of certain clinical symptoms or a combination of certain diseases pointing to an over-irritation of the V. N. S. can be observed in the same patient, that the primary cause of such diseases or clinical symptoms may be found in that over-irritation. As roentgen therapy is able to diminish simultaneously the entire group of clinical symptoms or the entire group of certain diseases, it is logical to assume that all the diseases were produced by the same cause. Erich Leschke, has recently published a book on diseases of the V. N. S. which is being accepted by many internists with some skepticism.

The treatment of asthma with roentgen rays is known to you all. In a previous publication we have attempted to demonstrate that the results obtained when such different parts of the body were treated could only be explained as an effect of roentgen rays on an over-irritated V. N. S. The whole system is brought into equilibrium but only a certain percentage of cures in the form of a balanced V. N. S. can be expected because of the many etiological factors of asthma. The generally accepted idea that asthma is the expression of an allergic host infers immediately the presence of a disturbed V. N. S. That x-ray therapy is able to influence asthma favorably has been reported in a great number of publications.

Hot flashes, pruritis, sudden outbreaks of perspiration, symmetrically appearing pain in the joints, muscles, or tendons, symmetrical dermatoses, cold hands and feet, cramps, etc., indicating neurocirculatory dysfunction, increase of blood pressure without kidney pathology, rhinitis vasomotorica are all signs of over-irritation of the V. N. S. and are frequently observed during the menopause. This increase in sympatheticus tonus is brought about through the involuting ovaries (Langer) and that some of the other glands of internal secretion are secondarily stimulated to hyperfunction by this in-

crease of the tonus of the sympathicus has been suggested by the voluminous hormone studies.

Werner, treating the region of the hypophysis, was the first to report excellent results in menopause disorders. He explained the beneficial effect of such radiation as the influence of x-ray on the vegetative nervous centrum, but, at his time of publication, hardly anyone believed in the effect of x-rays on nerve tissues. When Borak found an 80% complete disappearance of menopause symptoms after x-ray application of the pituitary region and the thyroid, he explained the result as a depressing effect of x-rays on the function of these glands. Since we have given detailed explanation in other reports of why the effect of radiation in such cases must be primarily on the V. N. S., we will refrain here from its repetition.

We have also reported the correlation and treatment of disturbances of the V. N. S. in neuralgia and arthritis, and these cases of arthritis which showed typical signs of over-irritation of the V. N. S. yielded satisfactory results. Since then other investigators both here and abroad have corroborated this finding. In 1927 we reported our reasons to believe that x-ray therapy had essentially no effect on the thyroid gland but that the primary effect of radiation was on the V. N. S. Today, more than ever, we are convinced of this statement for the following reasons:

1. We are able to prove that in cases which present the classical symptoms of toxic hyperplasia of the thyroid gland and in which the typical x-ray treatment over the thyroid gland and thymus regions do not bring the desired results, x-ray treatment over the ganglia of the V. N. S. situated either higher or lower or both brings about a decrease in the basal metabolic rate and clinical recovery. Jugenburg reports improvement after failure of direct treatment of the thyroid gland when the pituitary region in women of the menopause period was treated with x-ray, and Zimmern reports corresponding results after treatment of the adrenal region. We have stated in 1923 that treatment over the ovaries influences also the V. N. S. and that the symptoms of toxic hyperplasia of the thyroid gland may disappear.

2. Adrenal sympathectomy as reported by Crile reduces the basal metabolic rate and eradicates the symptoms of toxic hyperthyroidism in certain cases where the thyroid gland itself is not touched. (See also Zimmern's report.)

3. The recent discovery of Sunder-Plassmann seems to demonstrate microscopically that every cell of the thyroid gland is under the most minute influence of the V. N. S. Since he was unable to find any peripheral

ganglia in the thyroid gland he believes that the thyroid must be under central nervous influence.

Sunder-Plassmann believes that central excitation (shock, worry, predisposition, etc.) is able to irritate the sympathicus and, in certain cases, symptoms of hyperfunction of the thyroid gland will be observed. He found that in the beginning of such hyperfunction a possibility to restore the thyroid to normal is still present and proposes resection of the sympathicus of the neck with the idea of bringing an over-irritated sympathicus into balance. In the latter stage of the disease Sunder-Plassmann proves that the over-function of these glands of internal secretion affects the end-fibers of the sympathicus to such an extent that an irreversible Basedow exists. He found in such cases that the end-fiber of the sympathicus microscopically degenerates into a clump and since such toxic hyperplastic thyroid is no longer under the control of the V. N. S. only resection of such a gland offers the patient hope of recovery.

Sunder-Plassmann calls the x-ray treatment of the thyroid gland "the bloodless resection of the sympathicus of the neck." It seems to us that the extensive research of Sunder-Plassmann will decidedly help to bring a more peaceful discussion of this subject to the surgeons and roentgen therapeutists in the near future.

The outstanding clinical symptom in toxic hyperplasia of the thyroid is increased metabolic rate. Should further investigation prove that this increased metabolic rate is a sign of over-irritation of the sympathicus and not a disease of the thyroid gland itself, roentgen therapy of the V. N. S., as we have advocated for certain other diseases, will find a broader field of activity. May we mention further that the effect of roentgen therapy in toxic hyperplasia of the thyroid gland can be assumed to be primarily on an over-irritated sympathicus for the reason that Stage I (increased excitability of the sympathicus) is always observed a few hours after the first roentgen application. In other words, the patient seems to be worse before Stage II appears.

It is not right to compare the effect of roentgen therapy to a bloodless resection of the sympathicus as Sunder-Plassmann expressed it. Our suggestion has always been to bring an over-irritated V. N. S. just into balance, if possible, and surgery seems to attempt this rather crudely



by completely interrupting the physiological pathways. Yet the pioneer work of surgery on the V. N. S. has gradually brought forth an increase in the amount of publication from roentgen therapeutists.

Phillips and Tunick made a preliminary report on the effect of roentgen irradiation in thromboangiitis obliterans in 1925 and they believed in a stimulating dose of x-ray. For many reasons including the remarkable results which Mayo and Adson found after bilateral sympathectomy, we differ with their opinion. Gilbert and Babaianz and Pfahler have recently given their technique of treatment and seem to favor our opinion of a depressing effect of roentgen rays on an over-irritated V. N. S.

As our personal experience with x-ray treatment in Raynaud's disease is only on a few cases and the etiology is still unknown as Sir Thomas Lewis has again recently pointed out, we should refrain from any discussion. Borchard and Ostrowski demonstrated that, in Raynaud's disease and scleroderma, increased irritation of the V. N. S. exists. Cases which came to our observation showed Raynaud's syndrome in co-existence with other signs of over-irritation of the sympathicus. In such cases, we had satisfactory results after x-ray treatment over the entire V. N. S. Langeron and Desplats report recently also beneficial results treating the cervico-dorsal area as well as the region of the adrenal gland and the hypophysis.

Surgery of the V. N. S. for angina pectoris has proven the important part that an over-irritated sympathicus plays in the production of this disease. Roentgen therapy has not been used extensively enough nor in proportion to the indications. Sussmann reports 16 patients treated paravertebrally with x-ray and tabulates the results thus: Six practically free from further attacks, five slightly improved, one died, and four did not return for further treatment. Nemours observed 51 treated cases, 31 free from symptoms, eight improved, five no change, one got worse, and six died during the course of treatment.

- Langeron and Desplats came to the conclusion that all patients who showed signs of disturbances of the cardiac plexus should be treated with x-rays, contraindications being only grave insufficiency of the heart, badly compensated

valvular disturbances, general bad condition of the patient, or very great age.

Hehring discovered in February, 1924, the reflex of the sinus carotis. Until then the teachings of the peripheral circulation were dominated by the chemical hormone theory. The regulative influence from this sinus reflex on blood pressure, heart beat, respiration, peristalsis of the stomach and intestines, and the entire vasomotor tonus is by this neuroreceptor complex. That extensive x-ray treatment exclusively over this area brings about reduction of blood pressure in essential hypertonia has been demonstrated by Carulla, Quesalbo and Gonzales.

Kuntz states that hypertension is commonly associated with structural vascular lesions. It sometimes occurs in the absence of such lesions, however, as a result of sympathetic stimulation. The cause of such sympathetic stimulation is sometimes traceable to hygienic or dietetic variations, sometimes to acute or chronic disease processes, and not infrequently to psychic and emotional disturbances. Since the first publication of x-ray therapy for hypertension by Zimmern and Cottenot, the idea of influencing the adrenals in their secretion by this method has been used by many other investigators. The greatest experts of the so-called "radiotherapy surrenal," Langeron and Desplats, reported hardly any changes in blood pressure after such treatment but stated that dizziness and cramps disappeared and that the clinical symptoms which seemed to be connected with adrenal spasms were relieved as a result of radiation of the V. N. S. Bauer, Oliver, and others could prove that increased adrenalin secretion was not responsible for hypertonia. X-ray treatment over the adrenals from the standpoint of reducing their secretion seems of little value, according to the reports in the literature. Kylin, who has studied and written much about hypertonia, states in his different books that the real cause of hypertonia is still unknown, but that a shift in the V. N. S. exists in its presence. Kylin found, in 1921, that the great variability of blood pressure in essential hypertonia is not produced through organic changes of the peripheral blood system. He believes that three factors are responsible for producing hypertonia:

1. Blood vessel regulating centra in the brain.
2. Peripheral effect from the V. N. S.

### 3. Hormones produced by the adrenals and hypophysis.

Hamperl and Heller injected kaolin into the base of the fourth ventricle and were thereby able to produce chronic irritation of the vegetative nervous center and permanent hypertonia in dogs, and it closely resembled essential hypertension in man. Hogler and others could prove the denervation of adrenals had no influence on the artificially produced hypertension in dogs, and Oliver found that even desiccation of the adrenals was unable to change the hypertonia such dogs. Our x-ray therapy for essential hypertension dates back to the first publication of Crile on denervation of the adrenals for neuro-circulatory asthenia. Crile points out that this type of patient resembles a mild form of hyperthyroidism. A case, which was seen by the Crile clinic and which we had the good fortune to study, presented, besides a certain amount of hyperthyroidism, angiospasm of the hands and feet and an increased blood pressure. We connected these clinical symptoms with an over-irritation of the sympathetic and the x-ray therapy over the entire V. N. S. including the diencephalon produced a satisfactory clinical result in this patient. From there on our investigation led us to another symptom which we assumed to be another manifestation of an over-irritated V. N. S., namely, that frequently increased blood sugar was found in such patients. Curshman stated recently that very little is known about the etiology of diabetes mellitus. He quotes Levy and Dressel who found very often degenerative histological changes in the diencephalon. Curshman believes in an hereditary influence for the diabetic patient and a neuro-traumatic origin for some of them. Anatomical findings prove that diabetes mellitus is a disease of the pancreas and lack of hormone is the outstanding factor in this disease since insulin is able to influence every diabetic patient, yet the neuro-vegetative influence must be taken into consideration. Erich Leschke was the first to insist on the nervous disturbances of the Islands of Langerhans. Donnhover and McLeod agree with Claude Bernard that the irritation set up the Piqure rather than the destruction of some center or pathway is responsible for the hyperglycemia effects which follow. Their animal experiments are summed up as follows: "When decerebration is performed in rabbits during the

short period of anesthesia induced by the intravenous injection of amytal, marked hyperglycemia supervenes within two hours provided that the pons is involved. Decerebration anterior or posterior to this region seldom has any effect on the blood sugar level, except when it involves a nervous portion of the medulla adjacent to the pons. It is possible that the nerve control acts by causing an increased secretion of adrenalin when the blood sugar tends to fall, or of insulin when it tends to rise, but there is, as yet, no unequivocal evidence in support of such a hypothesis."

Erich Leschke, insisting that the production of insulin is essentially regulated through the V. N. S., points out that the pancreas of some patients who have died in a diabetic coma often contains enough insulin to regulate carbohydrate metabolism for more than a week. Our reasons why x-ray treatment in certain cases of diabetes mellitus should be directed primarily to the V. N. S. are the following:

1. Generalized pruritus in diabetes is a sign of over-irritation of the end-fibers of the sympathetic in the skin and it is influenced by paravertebral x-ray treatment.

2. In diabetic gangrene, paravertebral treatment produces a better circulation in the affected extremities. Dilatation of the arteries is produced by depressing the over activity of the sympathetic.

3. Paravertebral treatment in diabetes mellitus increases the amount of blood sugar and also urine elimination, and both phenomena were called by Desplats (one of the first who treated diabetics with x-ray over the adrenal region) paradoxical but they now can be explained as a stage I reaction.

4. The essential hypertonia which exists in 25-35% of all diabetic cases, as reported by Peisler, Kylin and Maranon we believe to be due to an over-irritation of the V. N. S.

At this point let us draw an analogy between the pathology of diabetes mellitus and Basedow's disease. We have already mentioned the remarkable work of Sunder-Rassmann who drew the conclusions that unless a sympathectomy was performed or x-ray therapy was administered in early cases of toxic hyperplasia of the thyroid gland, the end-fibers of the sympathetic in the gland become clumped and then irreparable damage is present. Quite frequently from laboratory examinations we find some patients with abnormally high blood sugar and we may also find a glycosuria. The laboratory indication is that the patient is suffering from diabetes mellitus, but this diagnosis had never been made before. May we not indulge in an interesting speculative analogy by comparing this patient to an early case of hyperthyroidism? If this



patient now is not given x-ray therapy or does not undergo some surgical procedure on the V. N. S., will not the sympathetic end-fibers in the pancreas also become "clumped" and thus develop irreparable damage?

Hutton has given a great stimulus to all of us in his many publications on radiotherapeutic treatment of hypertension and diabetes. We note with satisfaction in some of his cases an increase of blood pressure after x-ray treatment and then disappearance of many clinical symptoms such as menopause disturbances, rheumatic pain, increased basal metabolic rate and other signs which are so closely connected with an over-irritation of the V. N. S.; and even if we differ on the point of primary effect of the radiation, Hutton has given roentgen therapy a very important contribution in proving what can be done in hypertonia and diabetes mellitus with a certain technique of roentgen application. He has, at the same time corroborated our findings at which we arrived from a different angle, but with the same gratifying results as reported by him. "The fact remains," quoting Hutton, "that the patients can be relieved at least to some extent from their disability."

We note that, so far, certain clinical symptoms in internal disease assumed by us to be connected with an over-irritation of the sympathicus were treated with the same idea in mind, namely, to decrease such over-irritation of the V. N. S. with roentgen rays. There remains only one group of internal diseases where roentgen treatment has produced satisfactory results and that group is the blood dyscrasias. To connect them also with an over-irritation of the sympathicus and therefore to make their logical treatment x-ray therapy over the vegetative nervous center and ganglia has been reported by us and will be published shortly. Briefly we have found that paravertebral x-ray in small doses has proven very effective in the control of myeloid and lymphatic leukemia, polycythemia rubra vera, and Hodgkin's disease, if this, too, may be considered a blood dyscrasia. Those diseases of the blood which show hyperfunction of the blood producing organs can be influenced by radiation. As transformation from one blood dyscrasia into another has frequently been reported and described, it certainly is possible that only one factor may be responsible for the overproduction of the elements of the blood. Evans

and Leucutia pointed out that lymphatic leukemia, pseudoleukemia and lymphosarcoma all respond to the same amount of x-ray with the same beneficial effect at essentially the same time interval after treatment. They therefore conclude, like others, that these diseases are only different expressions of a single disease for which we now present a good working hypothesis. That emotional strain is able to increase certain constituents of the blood and to produce evidence of other forms of stimulation of the sympathicus has been reviewed by Kuntz. The well-known effect of massive doses of x-ray producing leukopenia has been found by Parisius to be an actual diminution of the white corpuscles in the blood stream and not a shifting of peripheral blood to the abdominal organs. The passing leucocytosis after roentgen irradiation before the leukopenia sets in, has never been satisfactorily explained. If we can accept the primary effect of the x-rays as being on the V. N. S., then the leucocytosis can be explained as a Stage I reaction which is followed by Stage II reaction found in the form of leukopenia. The increase of the red corpuscles in polycythemia rubra vera immediately after x-ray application, has been observed by many investigators. Basal metabolic rate is nearly always increased in these diseases as Friedgood and others have already pointed out. Friedgood believes that in leukemia an over-irritated V. N. S. must be present. Schlossmann, Baldrige and Barer found in their laboratory work that increased basal metabolic rate is not produced through the rapid breaking down of blood corpuscles in these diseases, and Menard demonstrated that basal metabolic rate is increased before the increase of blood corpuscles can be observed. The effect of the over-irritated V. N. S. on basal metabolic rate has already been discussed. Rosenow irritated the region of the centrum of the V. N. S. and produced leucocytosis and Schulhoff and Matties produced chronic irritation of the centrum by injecting silica in this region and observed an increase of red blood corpuscles in rabbits which led them to believe in a red blood regulating center in the brain. The x-ray therapy proposed by us in the form of treatment over the entire V. N. S. has produced, in every case, a result which at least must be called equal to the best results obtained with the old technique.

Clinical signs indicating a disturbance of the V. N. S. have been described. It is suggested that patients with more than one clinical sign of disturbance of the V. N. S. can be influenced by roentgen irradiation over such system with a satisfactory result. Careful clinical studies of patients who show only one outstanding symptom of an over-irritation of the V. N. S. will often reveal more signs if more are sought. Musser and Wright reported hypertension, obesity and hyperglycemia in women. Fat tissues are under neuro-regulation as has been described by Wassermann, Hausberger and others.

A single case came to our attention which displayed six different pathological entities, namely, Raynaud's disease, myeloid leukemia, carcinoma of the breast, hyperthyroidism, hyperglycemia, and symmetrical pigmented nevi of the abdomen. All of these conditions have been controlled for the last sixteen months by paravertebral x-ray treatment with the idea in mind of reducing an over-irritation of the V. N. S. The breast, of course, received direct treatment S. must be present. Schlossmann, Baldrige in addition. The fact that paravertebral treatment brought about this improvement substantiates our opinion that this result was due to the effect of radiation over the V. N. S. It clearly demonstrates the possibilities of roentgen therapy, and harmonious collaboration of roentgenologists and internists may help to solve many interesting problems in disease.

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## CARDIAC REVIEW OF 1935

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*General Remarks:* Reynolds<sup>1</sup> stated that the restrictions imposed upon the patient with a damaged heart at any age should be approached with a joyous attitude toward all he can do, not a pessimistic emphasis on all that he cannot do. Cohn<sup>2</sup> analyzed the apparent increase in the heart diseases from which the following inferences were drawn: 1. There has been a rise, but a slight one only, in the death rate from circulatory diseases; 2. Changes in the diagnoses which have been employed account in part for the interpretation which has been placed on the course of events; and 3. The slight rise in the total death rate from circulatory diseases is due apparently to savings from deaths resulting from infectious diseases in the very decades in which the slight rise in the circulatory diseases has occurred. Stroud<sup>3</sup> emphasized the need for the rehabilitation and placement in industry of those handicapped with cardiovascular disease.

### 1. ANATOMY AND PHYSIOLOGY

Blair and Davies<sup>4</sup> demonstrated the muscular nature of both the S-A and A-V nodes, and also the presence of nerve fibers with intraprotoplasmic endings in the tunica media of the branches of the coronary arteries. Katz, Mayne, and Weinstein<sup>5</sup> presented experimental evidence to indicate that cardiac pain is due to the presence of pain fibers in the nerve plexus surrounding the coronary vessels. Weiss and Ellis<sup>6</sup> tested the oxygen utilization and lactic acid production in the extremities during rest and exercise in subjects with normal and diseased cardiovascular systems from which they concluded that disturbances in the lactic acid production and peripheral circulation were the result and not the cause of the heart failure. Harris, Jones, and Aldred<sup>7</sup> reported that under resting conditions the lactic acid in the blood was increased in definite relation to the degree of congestive heart failure. Resnik and Friedman<sup>8</sup> stated that the basal metabolic rate was elevated in many patients with congestive heart failure and declined as improvement occurred; the chief factor in this mechanism appeared to be the increased work of the muscles of respiration but the

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diminished mechanical efficiency and consequent increased energy expenditure of the diseased heart also played an important role.

## 2. METHODS OF CARDIOVASCULAR EXAMINATION

1. *Heart Sound Records:* Bierring, Bone, and Lockhart<sup>9</sup> made a preliminary report on an electrostethograph as a satisfactory method of photographing heart sounds, a small compact unit entirely portable, and of distinct value as a supplement to auscultatory observations as well as providing a permanent graphic record. Schwarzschild and Feltenstein<sup>10</sup> presented a new type of recording apparatus which possesses distortion simulating that of the human ear so that it permitted strict correlation between clinical cardiology and phonocardiographic records. Johnston<sup>11</sup> illustrated the value of these records in the diagnosis of mitral stenosis, especially in the early cases which had low pitched murmurs difficult to hear, and also in well advanced cases where the apical heart sounds heard on auscultation were difficult to interpret.

2. *Electrocardiography:* (a) *Standard Three-Lead:* Proger and Minnich<sup>12</sup> indicated that left axis deviation without any other changes in the tracing does not indicate associated myocardial disease. Goodman<sup>13</sup> illustrated by means of unusual electrocardiograms evidence to support the theory that the heart responds to the rhythm center which develops effective stimuli most rapidly. Katz, Saphir, and Strauss<sup>14</sup> emphasized that left axis deviation occurred in graphic tracings of three cases of brown atrophy of the heart so that axis deviation by itself could not be taken as evidence of cardiac hypertrophy. Wilkins<sup>15</sup> indicated that the electrocardiograph may be a valuable diagnostic adjunct in the anginal syndrome of coronary sclerosis and when properly interpreted, becomes a method of precision indispensable in the complete scheme of cardiac diagnosis. Barnes<sup>16</sup> reported that it was the situation of the acute infarct in the left ventricle and not the vessel supplying the area that determined the character of the resulting electrocardiographic changes; these changes appeared as early as from one to two hours after the acute coronary occlusion, and the electrocardiogram did not return completely to normal in some instances for two or three years or more. Richter<sup>17</sup> demonstrated the value of serial electrocardiograms in coronary thrombosis as only

two of his 72 cases in which serial curves were taken failed to show significant changes in the tracings. Feldman and Kornblum<sup>18</sup> correlated the anatomical findings with abnormalities of the Q wave in Lead 3; a deep Q<sub>3</sub> was a very frequent finding in cases of old or recent myocardial infarctions. Graybiel and White<sup>19</sup> reported significant inversion of the T-wave in the electrocardiogram not associated with the usual causes; T-wave inversion was noted in young individuals with neurocirculatory asthenia, with thyrotoxicosis, in relation to certain infections, and following paroxysmal ventricular tachycardia. Dauksys<sup>20</sup> noted temporary flattening of the T-wave associated with pleural effusions. Schwab and Herrman<sup>21</sup> presented seven cases of pericardial disease of various types and again indicated the similarity in the electrocardiogram between pericardial effusion and coronary thrombosis with infarction; the occurrence of progressive changes in the T-wave in acute fibrinous pericarditis without an accompanying effusion and without any previous abnormalities in the RS-T segment was emphasized. Hinden<sup>22</sup> reported that the U-wave occurred in two forms, either as a sharp peak immediately after the T-wave or the succeeding P-wave; both types were found in health and in a great variety of pathological conditions. Uhse<sup>23</sup> noted that antirachitic therapy with various preparations had an influence on the electrocardiograms of children not unlike the changes seen in the postinfectious states. Lewison<sup>24</sup> stated that the electrocardiogram can play an important role in the control of children afflicted with active rheumatic heart disease where the conducting system is involved as a partial heart-block cannot be diagnosed clinically.

(b) *Lead IV, Chest or Precordial Leads:* Roth<sup>25</sup> thoroughly reviewed the literature on the use of chest leads in clinical electrocardiography and concluded that while these leads have found a permanent place, standard leads are still to be regarded as more dependable, and a parallel study of standard lead tracings, particularly with reference to minor deviations, should be pursued with at least as much attention as the study of chest leads. Strauss and Katz<sup>26</sup> studied the effect of digitalis on the appearance of Lead IV in digitalized normal and cardiac patients and noted that digitalis in large doses produced rapid changes in Lead IV which occasionally resembled



those seen in coronary occlusion. Goldbloom<sup>27</sup> reported four cases of coronary thrombosis in which there were persistent abnormal Lead IV findings in serial electrocardiograms with negative routine standard three-leads. Levy and Bruenn<sup>28</sup> indicated that in rheumatic fever, if successive electrocardiograms were taken, the precordial lead would furnish evidence of active carditis when changes indicating active myocardial involvement were not observed in the standard three-leads; on occasion, changes denoting rheumatic lesions in the heart muscle were present in the standard three-leads when no changes were apparent in Lead IV.

3. *Roentgenography*: Warfield<sup>29</sup> recorded 20 cases of aneurysm of the innominate artery which were diagnosed when a right-sided tumor in the superior mediastinum with associated aortitis was viewed; in the lateral and oblique positions a fusiform shadow was seen originating at the arch of the aorta, bulging posteriorly, so that compression of the trachea was a constant finding. Brown and McCarthy<sup>30</sup> reported that enlargement of the heart from any cause encroaches on the posterior half of the thorax and displaces the esophagus backwards; in lesions of the mitral valve the esophagus is displaced to the right and backwards, and in lesions of the aortic valve it is displaced to the left and backwards. Schwedel and Gutman<sup>31</sup> presented a case of unusual displacement of the esophagus due to adhesions to the heart and aorta in a 56 year old female who died of hypertensive heart disease of two years duration but had no difficulty in swallowing. Shiflett<sup>32</sup> reported two cases of localized pleural effusion accompanying congestive heart failure; on the roentgenogram the effusion was usually sharply localized to the interlobar fissure or to one lobe, and in all the cases reported it has occurred on the right side.

4. *Other Methods*: Wartman<sup>33</sup> stated that an increased venous blood pressure was observed only in patients suffering from congestive heart failure or mediastinal obstruction; of the patients with a venous pressure over 250 mm. of water, 69 per cent died within three months, whereas only 8 per cent of those with a pressure below this level succumbed. Brams and Golden<sup>34</sup> reported that it was exceptional for either the systolic or diastolic arterial pressure to show an appreciable fall after the ordinary venesection; the same results were observed in patients with

arterial hypertension as in those with a normal blood pressure. Hitzig, King, and Fishberg<sup>35</sup> stated that the systemic venous pressure was normal in isolated failure of the left side of the heart. Master<sup>36</sup> described a simple two-step test of myocardial function which was a definite aid in the diagnosis and evaluation of cardiovascular and in deciding how much work, sport, or other activity the patient was permitted. Lueth and Sutton<sup>37</sup> described a method of evaluating cardiac pain in children; those who did not experience pain after the simple pressure test and complained of cardiac pain almost always had demonstrable cardiac disease.

### 3. SYMPTOMS AND SIGNS

1. *Cardiac Pain*: Bourne<sup>38</sup> stated that an exact history was of the greatest importance in this group as the following differentiation could be made: (a) Quantitative pain, the angina of effort; (b) Spasmodic pain, the spasmodic angina; (c) Continued pain, of coronary occlusion; and (d) Pain having no specific relationships, the pseudo-angina or angina innocens. Special conditions considered were syphilitic cardiac pain, auricular fibrillation and cardiac pain, and cardiac pain in mitral stenosis. He stressed the necessity of carefully taking a history and analyzing the symptoms, and unless such a differentiation was made, research work upon the prognosis or upon the value of various therapeutic measures in cases of cardiac pain would be founded upon an insecure basis, likely to be misleading or fruitless. Wantoch<sup>39</sup> called attention to the connection between pains in the joints and muscles and heart disease, giving especial attention to the pseudo-rheumatic pains that frequently appeared in the shoulders and upper extremities and were related to angina pectoris; these pains were not only an accompanying symptom, but quite often the initial and for a long time the only symptom.

2. *Heart Sounds and Murmurs*: Flaxman<sup>40</sup> noted the variability of murmurs in 237 cases of mitral stenosis; auricular fibrillation was present in 46.6 per cent and had no effect on the character or type of murmurs audible; double murmurs were present in 76 per cent; systolic murmurs alone were present in 15.2 per cent; the murmurs of mitral stenosis were readily recognized by the characteristic rasping sound without resorting to definitely isolating the murmurs

in the cardiac cycle by timing. Friedlander and Brown<sup>41</sup> made further observations on the clinical significance of the systolic murmur in 100 individuals with no evidence of organic heart disease; in 47 a soft systolic murmur developed following the use of amyl nitrate, but in none did a diastolic murmur or a loud systolic murmur occur. Bramwell<sup>42</sup> suggested that the similarity between the first heart sound in hyperthyroidism, in certain athletes, in some cases of congenital heart disease, and in some patients with hypertension on the one hand, and the first heart sound and presystolic murmur of mitral stenosis on the other hand, may be due to an increased velocity of the blood-flow through the mitral orifice when the auricular muscle is hypertrophied. DeChatel<sup>43</sup> stated that the contraction of the auricle plays an important part in the development of the first heart sound because the systolic sound becomes weaker as the conduction time lengthens; in valvular lesions the changes in the cardiac sounds were not uniform, and the intensity of the first heart sound was also influenced by the respiratory movements and by changes in the rhythm.

#### 4. INCIDENCE OF HEART DISEASE

Maher, Sittler, and Elliott<sup>44</sup> analyzed the etiologic factors in 1000 cases of heart disease in the Chicago area and reported the incidence of each as follows: Rheumatic, 29.2 per cent; hypertension, 26.2 per cent; arteriosclerosis, 24.1 per cent; thyroid, 10 per cent; syphilis, 9.7 per cent; neurologic, 8 per cent; pulmonary, 5.8 per cent; bacterial, 1.6 per cent; congenital, 0.6 per cent; toxic, 0.6 per cent; trauma, 0.1 per cent; and unknown, 8.4 per cent. The combination of two or more factors in one patient presented an interesting field of study as 316 of the 1000 cases were in this group of multiple etiologic factors. King<sup>45</sup> reported the incidence of the etiologic factors in 556 cases of organic heart disease in the Pacific Northwest as follows: Hypertension, 49.4 per cent; arteriosclerosis, 20.3 per cent; rheumatic, 20 per cent; syphilis, 2 per cent; thyroid, 2 per cent; congenital, 0.9 per cent; bacterial, 2 per cent; and unknown, 5.4 per cent. Hedley<sup>46</sup> studied 450 cases of organic heart disease occurring in Washington (D. C.) hospitals and gave the etiologic incidence as follows: Arteriosclerotic-hypertensive, 61.4 per cent; rheumatic, 13.3 per cent; syphilitic, 12 per cent; bac-

terial, 4.7 per cent; congenital, 2 per cent; thyroid, 1.3 per cent; miscellaneous, 0.6 per cent; and unknown, 4.7 per cent. Moore<sup>47</sup> reported that 77.7 per cent of 297 cases having a cardiovascular abnormality had a hypertensive etiology, while the other 22.3 per cent had a large variety of etiologic factors. Dauer<sup>48</sup> analyzed the mortality rates of organic heart diseases by geographical areas in the United States and noted that in the younger age groups the rate was high in the Atlantic Coast States from Maryland to Massachusetts, in Illinois and Michigan, and in the Mountain States; low rates were noted in the west North Central States and in most of the Southern States; in the older age groups the Northeastern States showed the highest mortality.

#### 5. ETIOLOGY

1. *Congenital*: Muir and Brown<sup>49</sup> noted in a review of over 200 cases of congenital heart lesions that digitalis was of little use as its chief indication in these patients, auricular fibrillation, occurred once, and congestive failure was likewise rare. The three major causes of death which took toll of the congenital cardiac were pulmonary tuberculosis, infective endocarditis, and syncope. Leech<sup>50</sup> clinically analyzed 75 cases of congenital heart disease and stated that there was no characteristic type, location, or transmission of systolic murmurs, that diastolic murmurs were infrequent and not dependable, and that many combinations of congenital abnormalities occurred in the absence of any abnormal heart signs whatever.

(a) *Coarctation of the Aorta*: Farris<sup>51</sup> reported two cases, an 11 year old and a 19 year old boy, the hypertension in the youths suggesting the possibility of such a condition. Jacobson<sup>52</sup> described a case in a woman, the diagnosis based on the visible and increased collateral circulation, poor circulation in the lower part of the trunk and the lower extremities, increased blood pressure in the upper part of the body as compared with the lower part, and the positive roentgen examination.

(b) *Septal defects*: Rosedale<sup>53</sup> described a case; a ten year old boy, who, on exercise or fright since the age of four years, had cyanosis and dyspnea due to an interventricular septal defect combined with hypertrophy and dilatation of the pulmonary artery. Hirschboeck<sup>54</sup> reported



a case to illustrate the sequence of paradoxical emboli in the systemic circulation subsequent to venous thrombosis and in association with antecedent pulmonary embolism; a rare instance in which an embolus was found "in transit" through the patent foramen ovale at the time of death. Sprenkel and Stewart<sup>55</sup> related that the presence of significant physical signs in a 16 year old male, the systolic thrill and harsh murmur heard best at the third inner left intercostal space and unassociated with cyanosis, led to the clinical diagnosis of an interventricular septal defect; a pure culture of *Staphylococcus aureus* was obtained from the blood ante- and postmortem, and the aortic valve, in addition, was the seat of an old sclerosing lesion upon which an acute bacterial endocarditis was superimposed.

(c) *Persistent Ductus Arteriosus*: Carr, Goodale, and Rockwell<sup>56</sup> reported the occurrence of this lesion in a man who was never cyanotic except on exertion and was able to carry on his work of bookkeeping without difficulty. Hines and Wood<sup>57</sup> described the case of a young female with a patent ductus arteriosus complicated by a bacterial endocarditis and a hemorrhagic nephritis, the endocardial lesions involving the ductus, the pulmonary artery, the pulmonic valve, and the wall of the right ventricle.

(d) *Congenital Complete Heart-Block*: Kinsman and Andrews<sup>58</sup> cited the case of a five year old boy who had attacks of dyspnea and cyanosis since infancy; the only murmur ever heard was systolic in the cycle and always had an element of harshness in it. Levine<sup>59</sup> described a case with a labile ventricular rate in a 12 year old boy, the rate varying with fever, exercise, ocular pressure, and the administration of atropine and epinephrine.

(e) *Others*: Ngai<sup>60</sup> reported a congenital anomaly of the heart of the most extensive type in a 53 day old infant, yet clinically there were remarkably few physical signs and cyanosis occurred only during physical exertion. Wegman and Egbert<sup>61</sup> reported the case of a ten month old infant who developed a marked tachycardia after the seventh month which was diagnosed with the aid of the electrocardiograph as an auricular flutter with a rate of 240/minute; at autopsy a congenital rhabdomyoma invading the conduction system was found.

2. *Rheumatic*: DeGraff and Lingg<sup>62</sup> stated

that the average age at the initial infection of rheumatic heart disease in adults was 17 years; at the first appearance of symptoms of cardiac insufficiency, 28 years; at the first appearance of heart failure, 30 years; at death, 33 years; the average patient who was infected at the age of 17 years was free from symptoms and able to carry on ordinary physical activity for 11 years. They<sup>63</sup> analyzed the influence of the type of valvular lesion on the course of rheumatic heart disease from the records of 644 patients who died from this condition, and concluded that the valve affected did not seem to influence the duration of life except in the cases of pulmonic or tricuspid involvement; valvular disease in itself gave no information as to the prognosis in these cases. They<sup>64</sup> studied the influence of auricular fibrillation on the course of rheumatic heart disease in adults and concluded that the fibrillation per se did not determine the prognosis or life expectancy, since it was generally a late manifestation observed in the long standing cases. Davis and Weiss<sup>65</sup> analyzed data on the course of fatal rheumatic heart disease and noted that almost 33 per cent of the patients succumbed as a result of a fulminating course precipitated by factors other than chronic myocardial failure such as acute carditis, embolism, and infections other than rheumatic fever. Bland, White, and Jones<sup>66</sup> stated that the evolution of rheumatic involvement of the mitral valve in young people follows within limits a consistent course; the ultimate development of extensive valvular deformity either with or without actual stenosis of the mitral orifice probably requires a minimum of two years and in most instances a considerably longer period of time, although exceptional cases have been noted. Gross, Kugel, and Epstein<sup>67</sup> described vascular lesions in the main coronary arteries and branches seen in cases of active and inactive rheumatic fever, together with a statistical indication of the frequency of occurrence, the sites of predilection, and a comparison with the findings in normal control cases; several lesions were so peculiar in structure as to suggest the possibility they might be specific for rheumatic fever, but this conclusion cannot be accepted as final without an extensive search for similar lesions in other affections of the myocardium. Gross<sup>68</sup> noted a strikingly high incidence of destructive and inflammatory lesions in the roots of the pulmonary artery and aorta in

rheumatic fever. Yater and Hedley<sup>69</sup> cited a case in which attacks of rheumatic fever recurred for 1½ years, were alleviated by salicylate therapy, and in one attack there was a pericardial effusion; during one attack of polyarthritis, manifestations of septicemia developed suddenly which did not respond to salicylates and blood cultures revealed growths of alpha prime streptococci. Cotton<sup>70</sup> reported the after-histories in a series of 100 cases of rheumatic carditis, all boys with an average age of 11 years, observed over a period of ten years; of 57 cases of mitral disease with a systolic murmur only, 63 per cent living and 32 per cent dead; of 23 cases of mitral stenosis, 35 per cent living and 61 per cent dead; of 14 cases of aortic regurgitation and mitral stenosis 50 per cent living and 43 per cent dead; of the entire 100 cases, 54 per cent living and 40 per cent were dead at the end of ten years. Schwarz and Leader<sup>71</sup> observed 75 cases of so-called "pure" chorea for a period of one to twelve years for evidence of cardiac involvement; it seemed as though the heart was always involved in chorea as in rheumatic fever. Bertrand and Abdala<sup>72</sup> stated that enlargement of the cardiac area, as determined by percussion, was a sign of value in children with atypical forms of rheumatic fever in which the symptoms of cardiac complications appeared late or not at all. Bland and White<sup>73</sup> stated that it is a mistake seriously to limit the activities of any child with inactive rheumatic heart disease on the basis of cardiac murmurs alone, but that the child should be encouraged to lead as active a life as his functional cardiac reserve will allow. Abt<sup>74</sup> described cases of erythema annulare rheumaticum exclusively associated with rheumatic endocarditis; the occurrence of this rash in children suffering from the specific endocarditis was considered to be evidence of either the persistence of an active rheumatic endocarditis or as a sign of reactivation of the disease; a specific exanthem with pale red or bluish red lesions, semicircles or rings, the lesions were found on the chest, over the abdomen, on the sides of the thorax, and on the back, rarely seen on the extremities, never on the face or mucous membranes, never papular but always macular, not associated with itching, edema or hemorrhages, and disappeared without scaling or pigmentation.

3. *Bacterial*: Saphir<sup>75</sup> encountered minute infarcts as the most common and characteristic

myocardial lesion in subacute bacterial endocarditis along with numerous other muscle changes, and concluded that there was no specific myocardial lesion in this disease. Von Glahn and Pappenheimer<sup>76</sup> observed cases of subacute bacterial endocarditis for the relationship between it and rheumatic endocarditis, and concluded that the continued activity of the rheumatic manifestations in cases of bacterial endocarditis was attested by the invariable occurrence on the valves of rheumatic verrucae which did not contain bacteria, and by Aschoff bodies in the myocardium in the same percentage of cases as seen in rheumatic carditis. Schwalbe<sup>77</sup> attempted to explain the rapid course of acute endocarditis caused by streptococcus viridans as compared to endocarditis lenta not only on the variation in virulence of the attacking organism, but also on the reduced defensive power and previous impairment of the heart. Tunnicliff and Woolsey<sup>78</sup> reported that 81 per cent of the streptococcus cultures from the blood of patients with subacute bacterial endocarditis belonged to the Viridans group; 84 per cent of these cultures showed signs of "roughness" either morphologically or colonially or both, observations which suggested that the "rough" element of streptococcus cultures may be an essential factor in the production of this endocarditis. Segal<sup>79</sup> noted two cases of auricular flutter and three of auricular fibrillation in 192 cases of bacterial endocarditis; these cases occurred in the course of subacute bacterial endocarditis showing evidence of mitral involvement alone or in combination with aortic valve involvement, but no cases of severe mitral stenosis were noted. Kidd<sup>80</sup> reported a case of instant death in a young adult with bacterial endocarditis due to a mycotic ulceration of the conduction system. Fox<sup>81</sup> described a rapidly fatal case of endocarditis due to hemolytic para-influenza bacillus in a female, important not only because of the unusual organism isolated but also because no portal of entry to the blood stream was found. Okell and Elliott<sup>82</sup>, in a study of bacteremia and oral sepsis in reference to the etiology of subacute bacterial endocarditis, reported that within a few moments after the extraction of teeth from obviously septic mouths, a transient streptococcal bacteremia lasting a few minutes was observed in 75 per cent of cases; of 110 persons with septic mouths 10.9 per cent were found to have a strep-



tococcal bacteremia irrespective of any operative interference, observations based on the examination of the blood on a single occasion.

4. *Syphilitic*: Cormia<sup>83</sup> reported an incidence of cardiovascular syphilis of 2.68 per cent in 7,416 autopsies during 35 years, its incidence as a killing disease decreasing but slightly in that period. Maynard, Curran, Rosen, Williamson, and Lingg<sup>84</sup> studied the early diagnosis and clinical course of aortitis in 346 cases of syphilis, of which 41.9 per cent showed positive evidence of cardiovascular syphilis; heart failure occurred only in those patients in whom the involvement had passed beyond the stage of simple aortitis and had developed the late lesions of aortic insufficiency, aneurysm, or narrowing of the ostia of the coronary arteries; their opinion was that the involvement of the aorta began soon after the chancre had appeared. Padgett and Moore<sup>85</sup> stated that properly directed antisymphilitic therapy resulted in a prolongation of life in two-thirds of patients with saccular aortic aneurysm or syphilitic aortic insufficiency, the remaining third coming under observation with an initially bad prognosis and did not survive sufficiently long for proper therapy to be administered. Stratton<sup>86</sup> charted the statistical study of the duration of life in 80 treated and untreated patients with aortic aneurysm and aortic regurgitation as an addition to the original work of Moore in the hope that their inclusion may be of some value in ultimately arriving at a large enough total of similarly studied groups to make the findings conclusive. Norris<sup>87</sup> reported two cases of syphilitic aortitis with sudden death, one in a nine year old girl and the other in a boy of 17 years, with evidence that the lesions were of congenital origin. Love<sup>88</sup> presented a general outline for the treatment of patients suffering from various forms of syphilis of the heart to indicate that such treatment is worth while; even in the suspected presence of syphilitic coronary disease the use of neoarsphenamine was advocated because the prognosis in these cases is extremely grave when untreated, and evidence has been offered to indicate that considerable prolongation of life and symptomatic relief may be obtained with such treatment. Magill<sup>89</sup> described five cases of marked cardiac decompensation which he believed were due to syphilitic myocarditis as all showed extensive scarring and round cell infiltration of the myocardium microscopically.

Sohval<sup>90</sup> reported two cases of gumma of the heart, exclusive of aortitis with commissural involvement; unusually situated weird stenotic murmurs, unexplained roentgen shadows at the cardiac margins, and heart block in a patient in whom syphilis was suspected, suggested the possibility of tertiary cardiac syphilis, most likely gumma. Bamber<sup>91</sup> reported a case of syphilitic heart disease showing marked changes in the electrocardiogram following the administration of potassium iodide, which disappeared when the iodide was stopped, only to recur when the iodide was renewed; the graphic changes occurred in the T waves. Sohval<sup>92</sup> reported two rare instances of cardiovascular disease, well scarred granulomas, presumably syphilitic in origin; in a male who had syphilitic aortitis and aortic insufficiency, there was a lesion of cartilaginous hardness in the mitral valve and fibrous septum with destruction of the Bundle of His; a female had a severely scarred aorta, a destructive lesion of the aortic valve, and fibrous thickening of the anterior mitral leaflet as contiguous processes. Blackman<sup>93</sup> described two cases of syphilis of the mitral valve and membranous interventricular septum of the heart occurring together with aortic insufficiency and typical syphilitic lesions of the aortic valve as directly continuous changes.

5. *Other Infections*: Faulkner, Place and Ohler<sup>94</sup> made an electrocardiographic study of 171 cases of scarlet fever during and following the acute infection; abnormal tracings were noted in 11 cases, usually after the thirteenth day from the onset of the scarlet fever; a follow-up study of 600 cases one to three years after the acute infection was made, and it was found that seven patients had developed heart disease in the interval but the type of carditis present was indistinguishable clinically from rheumatic heart disease. Frank<sup>95</sup> reported nine cases of diphtheria in children who had severe cardiac conduction disturbances and eight cases in which the electrocardiograph showed severe impairment of the myocardium; all of the children in whom cardiac conduction was greatly impaired died. Spink<sup>96</sup> described the cardiovascular complications of trichinosis; six of his 18 cases of trichina showed electrocardiographic changes, the earliest deviations being noted in the second week of the disease, but only one of the patients presented clinical evidence of myocardial dam-

age. Porter and Bloom<sup>97</sup> reported a clinical study of the heart in 30 patients with typhoid fever, of which 46.6 per cent showed significant changes of a transient nature in the electrocardiogram; from a clinical point of view the heart presented no significant problem in the treatment of typhoid fever. Dahl<sup>98</sup> reported three cases of tuberculosis of the heart and large arteries; in a girl with acute miliary tuberculosis, there was a tuberculous infiltration extending into the left pulmonary artery; a tubercle containing abundant bacilli was found in the mitral valve with invasion of the adjacent endocardium of the heart of a female; a old male with no signs of a cardiac disturbance and inveterate partially calcified infiltrations in the apex of the left lung, a round well defined tumor the size of half a walnut was found in the wall of the left ventricle, and in the ventricle, corresponding to the tumor, tubercle bacilli were found in a layer of thrombus masses. Barnard<sup>99</sup> described solitary active tuberculous lesions of the internal carotid and coronary arteries showing no evidence of spread from a neighboring focus in a female who had cardiac failure; the origin of the tuberculous arteritis was evidently hematogenous from a calcareous nodule in the lungs. Jones and Rogers<sup>100</sup> presented a small group of patients showing congestive heart failure on the basis of a chronic cardiovascular sclerosis, in whom recompensation could not be obtained until after the removal of a coexisting sinus disease caused by streptococci, which suggested the possible relationship between the focal infection and the cardiac condition.

6. *Thyrotoxic*: Means and Lerman<sup>101</sup> cited two thyrocardiac cases to show that such a patient may be carried along for months under the influence of iodine and then be operated upon without serious consequences. Margolies, Rose, and Wood<sup>102</sup> noted the effect of thyroidectomy on the orthodiagram of the heart in thyroid disease; in uncomplicated hyperthyroidism there was a tendency for hearts of abnormal size, whether large or small, to return toward normal and for hearts within the normal zone to remain so; congestive failure in hyperthyroidism was almost always accompanied by enlargement of the cardiac area but this tended to decrease with post-operative restoration of compensation provided the thyrotoxicosis was also relieved. Rose, Wood,

and Margolies<sup>103</sup> studied the effect of thyroidectomy on the electrocardiogram and stated that abnormal tracings occurred with about the same frequency in patients with toxic and non-toxic goiter; marked T-wave changes occurred before and after thyroidectomy in hyperthyroidism but they were of no apparent pattern, their occurrence was unpredictable, were not characteristically larger than normal, did not necessarily become reduced in size when the hyperthyroidism was relieved, and did not always indicate the presence of chronic myocardial disease as the T-wave was often transient. Curschman<sup>104</sup> emphasized that if older persons have a cardiac insufficiency of obscure etiology, particularly if the insufficiency does not respond to digitalis and is accompanied by auricular fibrillation, a thyrogenic origin should be considered.

7. *Myxedema*: Hurxthal<sup>105</sup> presented a case of congestive heart failure the result of myxedema heart; the mechanical embarrassment of the circulation occasioned by the accumulations of effusions were the result of the myxedema and not of the heart failure. Escamilla, Lissner, and Shepardson<sup>106</sup> reported a case of severe hypothyroidism in a female with ascites, cardiac, intestinal and bladder atony, menorrhagia, secondary anemia and associated carotinemia and suggested that the term "internal myxedema" would best describe the findings in this patient; she was observed over a period of 13 months and all the symptoms and signs showed improvement on thyroid therapy except the anemia for which iron was necessary.

8. *Hypertension*: Fahr<sup>107</sup> stated that 55 per cent of the appalling death rate consequent to essential hypertension is due to heart failure and that heart failure of some degree is nearly always present in these cases in which death occurs in uremia, from apoplexy, or cerebral softening. The heart in hypertension shows left ventricular hypertrophy and dilatation with varying degrees of replacement scarring in the myocardium. There is some degree of coronary arteriosclerosis in 90 per cent of the cases; the coronary narrowing is responsible for the scars found in the myocardium; heart failure in a clinical sense does not develop in hypertension until many years, from ten to twelve years, have passed unless the coronary disease accompanying the hypertension becomes very severe or un-



less some other cardiac complication is present; many patients with hypertension live 15 years or more and finally die of one of the other consequences though some degree of heart failure may have been present previously or at the time of death. Rykert and Hepburn<sup>108</sup> demonstrated electrocardiographic abnormalities characteristic of certain cases of arterial hypertension; all of the cases had hypertrophy of the left ventricle caused most often by hypertension and less frequently by aortic valvular disease. Taussig and Remsen<sup>109</sup> reported the case of a two year old colored boy with hypertension, cardiac enlargement, and progressive congestive failure, a cardiac picture so frequently seen in adults. Trubek<sup>110</sup> stated that the presence of hypertension itself does not contraindicate any surgical procedure, but that the degree of structural changes with which it may be associated determines the extent to which surgery may be performed.

9. *Pulmonary*: McGinn and White<sup>111</sup> emphasized the clinical recognition of acute cor pulmonale secondary to pulmonary embolism; the symptoms were variable, but predominating at first were those of shock, followed by the reaction to the infarct itself. In the state of shock from extensive pulmonary embolism was not too great, or after it had cleared, there were signs indicative of the secondary effect of the pulmonary embolism. Clark and Graef<sup>112</sup> reported a patient with a cardiac diagnosis of unknown type with mitral insufficiency and stenosis with sinus tachycardia, Class 3, who had symptoms for seven years and decompensated one month before her hospital entry; gross examination at autopsy was not definite, but microscopy revealed it to be a case of Bilharziasis, schistosomiasis mansoni, a specific pulmonary arteritis which caused right ventricular hypertrophy, congestive failure and death. White<sup>113</sup> stated that the clinical recognition of the acute cor pulmonale—dilatation of the pulmonary artery and right heart chambers with or without failure—was an important step in the early differentiation between massive pulmonary embolism and coronary thrombosis and other conditions; the recent circumstances such as a surgical operation, accident, or phlebitis, with the abrupt onset, the increased prominence and pulsation noted by inspection and palpation in the region of the second and third intercostal spaces just to the left of the sternum with the

friction rub and systolic murmur over the same area, the cyanosis, the roentgen ray and the electrocardiogram helped make the diagnosis. Paul<sup>114</sup> stated that although the mortality rate among individuals with bronchial asthma is higher than among others of the same age groups, this cannot be attributed to cardiovascular disease as no evidence has been presented to show that asthma is primarily responsible for structural changes in the heart.

10. *Coronary*: Brown<sup>115</sup> in a study of the relationship of coronary arteriosclerosis to auricular fibrillation with especial reference to the term arteriosclerotic heart disease, reported that significant disease of the coronary arteries although fairly common among those with hypertension was not the sole factor in the development of permanent auricular fibrillation in such cases. Nemet and Gross<sup>116</sup> noted that patients who had hypertrophied hearts with coronary artery disease were more likely to develop congestive heart failure than those with non-hypertrophied hearts. Smith, Paul, and Rathe<sup>117</sup> analyzed the clinical course of 420 cases of coronary artery disease divided into five groups on the basis of the initial or the dominant initial symptom of dyspnea, paroxysmal dyspnea, severe anginal pain, angina of effort, or pain of an indefinite nature; the intimate relation of these clinical manifestations was one of the outstanding features in the progression of the cardiac disability, and indicated that the symptoms were merely different expressions of the same basic factor, a deficiency of the coronary circulation. Saphir, Priest, Hamburger, and Katz<sup>118</sup> evaluated the respective clinical pictures based on the anatomical findings in coronary thrombosis and stated that both coronaries were involved in all hearts examined and that at least two branches of the coronary arteries supplying the infarcted areas were involved; sudden death following the occlusion of a single main branch was not encountered. Wilhelmy and Helwig<sup>119</sup> analyzed 88 cases of coronary disease observed in 1000 necropsies and stated that 43 per cent had no history of pain, and no symptoms referable to the heart were elicited in 14.7 per cent. Stewart, Birchwood, and Wells<sup>120</sup> examined a small series of hearts to determine the relation between the size of the lumen of the coronary arteries at the site of atherosclerotic plaques, as seen in the col-

lapsed artery in the usual postmortem examination, and the true size of the lumen when the artery was distended by the usual blood pressure; they concluded that apparently the atherosclerotic plaques in the coronary arteries do not necessarily protrude into the lumen during life and the apparent narrowings seen in the dead body may not have existed during life. Katz and Bohning<sup>121</sup> stated that after the exclusion of serial four-lead electrocardiograms obtained in patients suffering from acute infectious processes, moribund patients, and those due to large doses of digitalis, they determined whether the coronary insufficiency was (a) an acute transitory insufficiency as angina pectoris, nocturnal dyspnea, cardiac asthma, or its equivalent; (b) subacute coronary insufficiency as recent occlusion, thrombotic or arteriosclerotic, with myocardial infarction; (c) chronic non-progressive, or (d) chronic progressive coronary insufficiency. Leary<sup>122</sup> suggested coronary spasm as a possible factor in producing sudden death where the lumen was adequate and unobstructed in an elastic coronary artery. Fernando<sup>123</sup> reported the occurrence of coronary occlusion in a patient 24 years of age whose mother died of the same cause when 45 years old. Cooley<sup>124</sup> reported the case of a 35 year old male who recovered from a coronary thrombosis and enjoyed 12 years of active life with considerable physical exertion before he succumbed to a second attack. Master<sup>125</sup> reported the improved prognosis of 75 patients in 85 attacks of coronary thrombosis treated by prolonged rest in bed and a low calory diet; the patients returned to their usual routine life or work following at least 62.5 per cent of the attacks and resumed light to moderate activity in at least 14 per cent. Cooksey,<sup>126</sup> in a follow-up study of acute coronary thrombosis with especial reference to the prognosis in 53 cases, reported that the mortality was 39.6 per cent; of the 32 surviving patients, 78 per cent were restored to their previous occupation with one patient living 13 years and ten patients living six years after the onset of the infarction. Smith and Sauls<sup>127</sup> reported eight cases of the less severe and atypical types of coronary thrombosis to indicate that the immediate mortality in this condition may be materially reduced by the early diagnosis and treatment of patients who fail to manifest the usual signs and symptoms of this

disease. Horine and Weiss<sup>128</sup> reported that patients who had normal sized hearts at the time they experienced a coronary thrombosis did not develop roentgenologic evidence of cardiac enlargement although observed from five months to almost ten years. Applebaum and Nicolson<sup>129</sup> analyzed the pathological anatomy of occlusive diseases of the coronary arteries; in the main or arteriosclerotic group the heart weights were above 500 grams in 50 per cent of the cases and in many of these there was a clinical record of hypertension or evidence of hypertension prior to the occurrence of the coronary occlusion. Wood and Hedley<sup>130</sup> reported a distinct variation in the seasonal incidence of acute coronary occlusion in Philadelphia, the majority of the cases occurring in autumn and winter. Holst<sup>131</sup> stated that many of the symptoms of myocardial infarction are so transitory that they can be confirmed by examination at certain times or by repeated examinations. Williams<sup>132</sup> cited a case of coronary thrombosis in which the transitory reduplication of the second tricuspid sound was the sole sign after a fainting attack. Sprague and Orgain<sup>133</sup> stated that cases of acute coronary thrombosis with closure limited to a single coronary artery or branch were relatively rare at the autopsy table. Knauer<sup>134</sup> reported a case of transient complete heart-block in acute coronary thrombosis studied with serial electrocardiograms from the actual onset to and after clinical recovery. Bickel, Nozer, and Sciclounoff<sup>135</sup> suggested that the blood sedimentation test in myocardial infarction may prove a useful adjunct to the clinical signs and electrocardiogram in deciding how soon after the thrombosis the patient may return to activity. Grant and Miller<sup>136</sup> reported a case of primary atheroma of the left coronary artery with the resultant myocardial fibrosis leading to insufficiency and death in a 25 year old male. Hoseason<sup>137</sup> cited the occurrence of sudden death in a 36 year old male due to an embolism of the right coronary artery which originated from a small thrombus loosely attached to an ulcerated area over a calcified nodule on the posterior cusp of the aortic valve. Durant<sup>138</sup> described the occurrence of coronary air embolism complicating the attempted induction of artificial pneumothorax for a unilateral tuberculous process with cavitation in a young female. Medlar<sup>139</sup> reported cardiac infarction in a 40 year old male with pul-



monary tuberculosis whose death was entirely unexpected, the cause being a caseous tuberculous embolus within a branch of the left coronary artery.

11. *Miscellaneous.* (a) *Pregnancy:* Schuman<sup>140</sup> reported 2.3 per cent of organic heart disease with two deaths in 918 deliveries; 11 had spontaneous or low forceps deliveries, one version and extraction, six Cesarean section and sterilization with one death, four had abdominal hysterectomy and sterilization, two had induced abortions, and one was undelivered who died. Fitzgerald<sup>141</sup> reported a series of 126 women with severely damaged hearts under observation and strict control during 192 pregnancies; no patient died during pregnancy or labor and no patient was delivered by Cesarean section because of the heart condition, and the most important factor in their care was the prevention of heart failure; 107 had mitral disease, 12 aortic disease, and seven had combined mitral and aortic lesions. Reis and Frankenthal<sup>142</sup> stated that the rheumatic heart disease was stationary rather than progressive in many women who went through repeated pregnancies with no apparent additional disturbances to the circulatory system. Bramwell<sup>143</sup> forbade pregnancy in all patients with established auricular fibrillation and in those known to have suffered from congestive heart failure; when patients in this group were seen in the early months of pregnancy the uterus was emptied, but no pregnancy was interfered with, either early or late, until every effort had been made to relieve the heart failure by medical treatment. Hanley and Anderson<sup>144</sup> reported 53 cases of pregnancy and heart disease; spontaneous delivery occurred in 68 per cent, forceps in 5.6 per cent, version and extraction in 5.6 per cent, and Cesarean section in 18 per cent. Daichman and Kornfield<sup>145</sup> stated that in a ten year period of 22,100 women delivered 205 had definite heart disease; 65 had spontaneous deliveries, 93 had forceps deliveries, six version and extraction, four abdominal hysterotomy and sterilization, eight cesarean section, without sterilization, 22 cesareans with sterilization, and three died undelivered. The mortality was 4.87 per cent, and contrary to the general impression that cardiac patients have short labors, 82 per cent of the primiparas had an average labor of 20.5 hours. Nelson and Eades<sup>146</sup> were unable to demonstrate in 495 patients that cardiacs have

any shorter or easier labor than the normal woman; the mortality was 4.6 per cent, and the pregnant cardiac patient was treated as a medical problem and secondarily as an obstetrical problem.

(b) *Trauma:* Beck<sup>147</sup> stated that contusions or nonpenetrating wounds of the heart rarely destroy life as the heart can tolerate an enormous amount of trauma; three possible sequences may occur, the heart ruptures, or the heart fails without rupture, or recovery takes place. Bright and Beck<sup>148</sup> reported that after the diagnosis of a cardiac contusion has been made the symptoms may disappear hours or days after the accident and the patient remain well, the symptoms may persist for years and the patient remain well but be accentuated by exercise, the heart may fail hours or days after the accident, or the contusion may soften and cardiac rupture occur any time during the first month. Beck<sup>149</sup> stated that the most common cause of acute cardiac compression is intrapericardial hemorrhage recognized by the triad of falling arterial pressure, rising venous pressure, and a small quiet heart. Fair<sup>150</sup> reported the case of a patient who forced a large-sized needle through the chest wall into the wall of the right ventricle of the heart, and operation within three hours of the act found the needle inaccessible in the heart muscle due to the retraction by systolic contractions; the patient recovered although the course was complicated by a suppurative pericarditis and an empyema, the needle remaining in the right ventricular wall. Goldberger and Clark<sup>151</sup> described the electrocardiographic and roentgenographic studies of the migration of a needle into the heart through the chest wall and the surgical removal; the pain distribution was that of coronary artery disease and the site of the needle puncture in the left ventricle was close to the proximal portion of the left coronary artery; the patient died from cardiac tamponade due to secondary hemorrhage into the pericardial sac. Benet and Spivey<sup>152</sup> reported the case of a boy knifed in the anterior chest wall, operated on 2½ hours later, and the wound in the anterior wall of the right ventricle was repaired with recovery from a complicating pleural suppuration and rib resection; the boy returned to work with no resultant cardiac embarrassment or clinical signs of pericardial adhesions. Koucky and Milles<sup>153</sup> described the case of a boy with a stab-wound of the heart on

whom surgery was performed without anesthesia or anything more than the most cursory attempts at sterility necessitated by the extreme state of the patient, and resulted in ultimate and complete recovery; a purulent pericarditis followed by a polyserositis occurred but there was little obliteration of the pericardial sac.

(c) *Arteriovenous Aneurysm*: McGuire<sup>154</sup> stated that the establishment of a large arteriovenous communication between the popliteal artery and vein in a young man was accompanied by a clinical picture simulating myocardial insufficiency due to aortic valvular insufficiency, and operative extirpation of the aneurysm caused a disappearance of the symptoms and findings. LaPlace<sup>155</sup> reported that among other changes the size of the heart was reduced 45 per cent following surgical closure of a traumatic arteriovenous aneurysm in his cases Kisthinos<sup>156</sup> stated that the rapidity of the appearance of cardiac disorders was in direct proportion to the size and caliber of the communicating vessels in arteriovenous aneurysms.

(d) *Uterine Myoma*: Fetter and Schnabel<sup>157</sup> reported that no indication was found of any such clinical entity as the "myoma heart" in 25 patients with uterine myoma; the most common concomitant in these cases was hypertensive heart disease.

(e) *Surgery and Anesthesia*: Hickman, Livingston, and Davies<sup>158</sup> stated that since there were only six deaths due to cardiac disease and two due to pulmonary disease related to surgery and anesthesia in 336 cardiac patients who underwent 345 operations, the mortality of 2 per cent indicated that as a group patients with cardiac disease are fairly good surgical risks; the most serious cardiac conditions with which the surgeon has to deal are angina pectoris, coronary occlusion, decompensation, hypertension, and thyrotoxic heart disease. Sise<sup>159</sup> reported that a nice choice between the anesthetic to be used for thyrocardiacs is less important than the conduct of the anesthesia which should include the avoidance of anoxemia and obstruction, and the use of liberal premedication, minimal rebreathing, and nicely adjusted depths of anesthesia.

## 6. PATHOLOGY

1. *Myocardial*: Simon and Wolpaw<sup>160</sup> reported a case of progressive and rapid myocardial failure without apparent cause in a 23 year old

male who died from acute, subacute, and chronic isolated myocarditis of unknown etiology. Sigler and Schneider<sup>161</sup> cited two cases of left ventricular aneurysm, one in a 33 year old male whose heart was the seat of a diffuse coronary sclerosis and occlusive processes with myocardial fibrosis; the clinical criteria for the diagnosis of cardiac aneurysm included a history of coronary occlusion, an abnormal area of cardiac dullness over which was heard a weak first heart tone, possibly an associated gallop rhythm, and a bulging cardiac shadow following the heart displacements on the roentgenogram. Niehaus<sup>162</sup> reported a typical obstruction of a coronary artery due to pressure from a calcified nodule in the myocardium. Shelbourne<sup>163</sup> described the signs, symptoms, and histologic appearance of a primary sarcoma of the heart in a 24 year old male who had a rapid accumulation of fluid in the pericardial sac accompanied by signs of acute cardiac decompensation. Stevenson and Turner<sup>164</sup> reported a case of sudden death due to the rupture of a papillary muscle in the heart; usually this is the result of coronary occlusion and infarction of the myocardium and the condition may be suspected clinically by the sudden onset of a loud whistling to-and-fro murmur occurring in association with the signs and symptoms of coronary occlusion.

2. *Endocardial and Valvular*: Held, Goldbloom, and Lieberman<sup>165</sup> indicated the diagnostic and prognostic importance of differentiating the "tight," non-regurgitant or fatal type of mitral stenosis, characterized by the pulmonary symptoms of persistent dyspnea and blood spitting, from the more benign form of double mitral disease of stenosis and insufficiency. Marvin and Sullivan<sup>166</sup> reported clinical observations upon syncope and sudden death in relation to aortic stenosis; nine patients died with extreme suddenness when they appeared to be in their usual health, and five were subject to sudden and unexpected loss of consciousness associated with slight to strenuous physical exertion. Clements<sup>167</sup> described a case of isolated tricuspid stenosis of probable rheumatic origin in which there was an extreme degree of narrowing of the tricuspid ostium with no involvement of the other valves, no history of rheumatic fever, a marked clinical similarity to mitral stenosis with Aschoff bodies in the myocardium and a slight enlargement of



the right auricle in the presence of the extreme stenosis. Kaplan and Hollingsworth<sup>168</sup> reported a case of pedunculated thrombus in the left auricle clinically simulating mitral stenosis in a 38 year old male who had auricular fibrillation.

3. *Pericardial*: Bunch<sup>169</sup> stated that suppurative pericarditis is essentially a disease of children and young adults, and although marked by characteristic physical and roentgen findings, accumulating evidence had indicated that most cases are not recognized clinically because the condition is not suspected and not looked for. Shipley and Winslow<sup>170</sup> reported five cases of purulent pericarditis treated by pericardiotomy and stated that troublesome postoperative adhesive pericarditis does not occur as often as presumed; the three chief factors that govern the prognosis are the time of operation, the type of organism, and the original condition of which the pyopericardium is a complication. Moore<sup>171</sup> advocated a left-sided posterior approach to the pericardium as the procedure of choice for drainage of suppurative pericarditis when this infection follows a left-sided empyema. Burwell and Flickinger<sup>172</sup> cited a case of obstructing pericarditis in a boy who, at operation, had a greatly thickened and inextensible pericardium with several encapsulated accumulations of purulent fluid amounting to about 25cc. from which a pure culture of *Staphylococcus aureus* was obtained; the chief mechanism underlying the symptoms and signs in this concrete cordis was an increased venous pressure and a decreased cardiac output, and the removal of a portion of the pericardium was followed by a fall in venous pressure, a rise in the cardiac output, and an increase in the cardiac pulsation. White<sup>173</sup> analyzed the literature and 15 personal cases of chronic constrictive pericarditis (Pick's Disease) treated by pericardial resection; the leading clues were the result of "inflow stasis," namely, the insidious onset of dropsy in a young person, preponderant liver enlargement and ascites, the increased prominence of the jugular veins, a normal or relatively normal heart in the presence of dropsy without nephritis, and a low blood and pulse pressure with a paradoxical pulse; other important clues were roentgen evidence as poor cardiac pulsation, calcification, or chronic pleuritis, and the electrocardiographic abnormalities as low voltage or "coronary T-waves" in chronic

disease in youth. Winkelbauer and Schur<sup>174</sup> described eight cases of adherent pericarditis treated surgically from which they observed that some of the anatomic changes were compensated by an improvement of the cardiac function and that the condition of the myocardium was the decisive factor for the extent of operation. Steuer and Higley<sup>175</sup> reported a case of a primary sarcoma of the pericardium completely surrounding and compressing the heart but not invading it. Barsoun<sup>176</sup> described a case of cardiac insufficiency with enlargement of the heart to four times the normal size due to marked dilatation in the absence of a pericardial sac.

4. *Vascular*: Weiss<sup>177</sup> described the clinical course of spontaneous dissecting aneurysm of the aorta and emphasized the occurrence of the initial syncope, the location and the character of the pain, the appearance of cardiac murmurs, the manifestations of peripheral vascular occlusions, and the occurrence of leucocytosis and fever. Thompson, Souttar, and Howells<sup>178</sup> treated a saccular aneurysm of the thoracic aorta in a 51 year old male by wiring with Colt's apparatus; the introduction of gold wire wisps into the aneurysmal sac produced coagulation within it, prevented its rupture, and enabled the patient to continue an active life for 3½ years. Behrend and Boles<sup>179</sup> described a case of aneurysm of the thoracic aorta with surgical intervention because of the uncertainty of diagnosis and associated adhesive pericarditis; the aneurysmal sac was accidentally opened and successfully closed at operation, and the patient survived for ten months with apparent benefit. Hardaway and Green<sup>180</sup> reported two cases of intrapericardial rupture of the aorta, one in a 19 year old male who developed very severe cardiac pain during a tennis tournament and died four days later after a sudden exertion with marked cyanosis of the hands and face outstanding; the other was a 54 year old male who was seized with severe cardiac pain while defrosting a refrigerator, had marked cyanosis of the hands and face and died suddenly six days later. Gough<sup>181</sup> described a case of thrombosis of the entire aorta in a woman aged twenty, the lesion apparently one of syphilitic aortitis accompanied by very severe atheroma but no gross aneurysm formation. McNaught and Dock<sup>182</sup> reported a case of sudden death from a spontaneous rupture of the

pulmonary artery in a 44 year old male who had suffered periods of marked cardiac decompensation for 16 years.

## 7. FUNCTIONAL DISORDERS

1. *Congestive Failure, Including the Use of Digitalis and Diuretics:* Harrison<sup>183</sup> stated that the precipitating factors in heart failure are infections, especially respiratory, exertion, cough, pregnancy, obesity, anemia, tachycardia, changes in rhythm, emotional disturbances, and prolonged mental strain. Cassidy<sup>184</sup> emphasized that in the aftercare of patients who have had congestive heart failure complete rest in bed should be enjoined for two or three months after all evidences of decompensation have disappeared. Carter<sup>185</sup> stated that digitalis is of no value in controlling premature beats, paroxysmal tachycardia, or the tachycardia of infections, and contraindicated in the so-called post-operative surgical shock except when definite signs of cardiac failure appear. Robey<sup>186</sup> reported two cases of visual disturbances due to digitalis; enough of the drug could be taken prior to the onset of white vision to produce a considerable effect upon the heart and this effect could be maintained by small doses which were then omitted when the visual disturbances occurred. Cohn and Lewis<sup>187</sup> stated that the giving of digitalis did not seem to influence the course of events in lobar pneumonia since the outcome depended on the severity of the infection. Arnold, Middleton, and Chen<sup>188</sup> reported that the action of thevetin, a cardiac glucoside, was more prompt but less sustained than digitalis; clinical application was limited because of the irritant qualities of thevetin. Carr and Mayer<sup>189</sup> stated that scillonin, a derivative of squill, produced the same effects as digitalis in the treatment of cardiac decompensation but the toxic manifestations on nausea and cardiac irregularities when they did appear were of a much severer nature than those of digitalis intoxication. Ginsberg, Stotland, and Loy<sup>190</sup> suggested that the sustained increase in the coronary flow in the intact experimental animal and the absence of undesirable physiologic reactions following the intravenous administration of hypertonic solutions of dextrose may account for the many favorable clinical results. Podolsky<sup>191</sup> stated that dextrose therapy was more likely to succeed in the early stages of cardiac insufficiency before gross

myocardial changes have occurred. Nichol<sup>192</sup> reported that in a group of 20 patients with heart disease 50% improved with the use of insulin in association with a high carbohydrate diet and extra feedings of glucose. Smith, Rathe, and Paul<sup>193</sup> indicated that the preparations of theophylline have a marked dilating action on the coronary vessels with distinct therapeutic value in the treatment of coronary artery disease regardless of whether the cardiac disability was expressed by congestive failure, paroxysmal dyspnea, angina of effort, or occlusion of the coronary arteries. Tziwanopoulous<sup>194</sup> emphasized that the administration of salyrgan should be preceded by thorough digitalization. Hug<sup>195</sup> stated that particular caution should be used in the administration of salyrgan even though it is well tolerated by young and old. Friedenson<sup>196</sup> reported the results of intensive ambulatory treatment with diuretic measures in advanced cardiac insufficiency where the chief problem was the prevention and control of edema which no longer yielded to digitalis alone; it was not claimed that the improvement with diuretic measures rendered the patient less liable to sudden death or prolonged life, it only made their existence more tolerable. Crawford and McDaniel<sup>197</sup> observed that a combination of an organic mercurial compound with theophylline (originally introduced as novurit but now called mercupurin) gave satisfactory increases in the volume of urine without toxic effects. Parade<sup>198</sup> reported a case in which a severe tachycardia, followed by vomiting, debility and collapse, occurred after the intravenous injection of salyrgan. Bloom and Cashion<sup>199</sup> stated that therapeutic doses of salyrgan have no effect on the blood pressure, the pulse or the electrocardiogram. Friedman, Resnik, Calhoun, and Harrison<sup>200</sup> noted that diuretic drugs, even when administered to patients with minimal edema, often produce marked relief from dyspnea. Fulton and Bryan<sup>201</sup> compared the effectiveness of mercurial diuretics with and without theophylline from which they concluded that one diuretic could be more effective than another in a given individual as better results may be obtained with mercupurin than with salyrgan and *vice versa*. Steuer and Wolpaw<sup>202</sup> reported good diuretic results with 2cc. doses of mercupurin



intravenously in congestive heart failure after the patients had been on cardiac routine for several days.

2. *Angina Pectoris*: Shambaugh<sup>203</sup> presented evidence to show that in the dog cardiac pain produced by the mechanical constriction of the coronary vessels did not cause a significant rise in blood pressure, yet the pain response could be precipitated by suddenly raising the blood pressure in the presence of subminimal constriction of the coronary vessels. Boas<sup>204</sup> stated that the syndrome of angina pectoris occurred in patients with calcareous aortic stenosis and appeared to be caused, not by disease of the coronary arteries, but by narrowing of the aortic valvular opening itself which impaired the blood supply to the coronary arteries simultaneously. Beach<sup>205</sup> reported constitutional diseases, an exophthalmic goiter, a pernicious anemia, a diabetic with insulin shock, and myxedema, all associated with anginal symptoms from which he concluded that the paroxysms occurred when the available energy did not equal the demands made on the myocardium. Sommer<sup>206</sup> stated that in adequate dosage the so-called cardiac hormone preparations in pure form, musculadenosine phosphoric acid, gave good service in the physiologic therapy of angina pectoris. Wolfe<sup>207</sup> reported that of 280 cases of angina pectoris treated with the insulin-free pancreatic extract, "Tissue Extract No. 568" (Desympatone), about 190 obtained complete or partial relief. Proger, Minnich, and Magendantz<sup>208</sup> studied the circulatory response to exercise in patients with angina pectoris and noted: 1. Failure of the heart rate to increase normally during exercise; 2. Development of extrasystoles shortly before the onset of pain and its disappearance shortly after the cessation of exercise; 3. A thin, thready, rapid, barely palpable pulse during exercise; and 4. Primary respiratory distress with a rapid pulse characteristic of cardiac weakness. Wedd and Smith<sup>209</sup> reported that 50% of 166 cases of effort angina had hypertension which did not alter the prognosis; about 33% died suddenly and over 50% died of coronary occlusion; the average duration of life was 5.8 years, greater than usually anticipated, and while the prognosis in the individual case must always be uncertain, when viewed in the light of its comparatively long duration and the late

age of onset and death as compared with the normal life expectancy, the anginal syndrome appears less grave and does not stand out as a serious complication of arteriosclerotic heart disease with which it is frequently associated.

### 3. ARRYTHMIAS, ETC.

(a) *Paroxysmal Tachycardia, Etc.*: Feher<sup>210</sup> reported two especially severe cases of paroxysmal tachycardia in which the continuous oral administration of large doses of quinidine, 2.5 to 4.5 grams daily, proved effective without any ill results. Stenhouse<sup>211</sup> controlled an attack of paroxysmal tachycardia in a 14 year old boy with large subcutaneous doses of acetylcholine. Farr and Wegman<sup>212</sup> reported a case of extreme tachycardia of unknown etiology in a newborn, the course of the disorder not obviously influenced by treatment. Aschenbrenner<sup>213</sup> reported a case of mitral stenosis in a woman, who, in a severe attack of tachycardia, was given large doses of digitalis, seven grains, intravenously until the tachycardia ceased. Thompson and Levine<sup>214</sup> observed 35 patients with systolic gallop rhythm over a period of 11 years and commented that the rarity of cardiac enlargement and physical incapacitation, the slight degree of arterial hypertension in those that had it, and the complete absence of congestive signs, all point to its benignity. Bramwell<sup>215</sup> stated that presystolic gallop rhythm is a sign of great clinical significance, occurring most frequently in patients with hypertension, advanced coronary disease, or acute inflammatory lesions of the heart, as it is an extremely grave prognostic sign, very few patients living more than two years after the presystolic gallop develops.

(b) *Auricular Fibrillation and Flutter*: Ferreira<sup>216</sup> discussed a group of patients in which the electrogram revealed a disorder of the auricular mechanism but which was neither true fibrillation nor true flutter; these cases responded well to the administration of digitalis followed by quinidine, the subjective symptoms as well as the graphic abnormalities disappearing. Nahum and Hoff<sup>217</sup> reported that acetyl-B-methylcholin chloride, also known as Mecholin, rapidly converted auricular flutter into fibrillation. Sayid<sup>218</sup> observed palpitation and dyspnea in cases of amebic dysentery after emetine injections and reported two cases of auricular fibrillation to show that the depressant action of eme-

time on the cardiac muscle is far from negligible. Arenberg<sup>219</sup> reported a case of paroxysmal auricular flutter with 1:1 auriculo-ventricular ratio in a male while digitalized for congestive failure; the tachycardia of 250/minute lasted two hours and was relieved by morphine.

(c) *Quinidine Therapy*: Kohn and Levine<sup>220</sup> evaluated the use of quinidine in persistent auricular fibrillation and stated that the question of reversion to normal rhythm was not the only criterion necessary to judge the success of the treatment; from an etiological standpoint, rheumatic valvular disease was most resistant and non-valvular fibrillation responded more readily, but the clinical condition of the patient proved to be no guide in avoiding disastrous results. Carter and Traut<sup>221</sup> demonstrated the value of the combined use of quinidine and strychnin in the treatment of premature contractions which precipitated congestive failure.

(d) *Heart-Block*: Yater and Cornell<sup>222</sup> reported a case of complete heart-block due to calcareous lesions involving the Bundle of His. Preston<sup>223</sup> cited the case of a young female, apparently healthy, who had several repeated fainting spells and her apex rate was 28/min.; after the diagnosis of complete heart-block was established by the electrocardiogram, the rhythm became normal 14 days later and remained so. Wolferth and Margolies<sup>224</sup> stated that a split systolic apex impulse was recorded in some, but not in all, cases of bundle-branch block, but it also occurred in the absence of bundle-branch block. Blaisdell<sup>225</sup> described the occurrence of transient heart-block in a diabetic patient during an attack of acute coronary thrombosis with recovery. Salcedo-Salgar and White<sup>226</sup> indicated that a marked discrepancy exists between the occurrence of heart-block, auriculo-ventricular and intraventricular, and the clinical evidence of coronary disease, so that even in the absence of associated angina pectoris, coronary disease or coronary thrombosis, the prognosis of the heart-block may be poor. Wood, Jeffers, and Wolferth,<sup>227</sup> in a follow-up study of 64 patients with a right bundle-branch conduction defect, stated that when this type of electrocardiogram is found in a patient with no other evidence of heart disease, it is not necessarily an ominous prognostic sign; its presence per se in a group of patients does not seem to add materially to the gravity of their prognosis. Faulkner<sup>228</sup> re-

ported an extreme degree of partial heart-block in which the P-R interval exceeded the R-R interval, and on one occasion the P-R interval reached 0.80 second as compared with the normal interval of 0.20 second or less; in spite of the extraordinary delay in conduction the sinus rate was usually normal or increased. Strauss<sup>229</sup> reported a cardiac arrhythmia which showed sino-auricular block of varying degrees, almost complete A-V dissociation without primary A-V block, nodal escapement, aberrant conduction, and sinus arrhythmia with a shifting pacemaker. Feldman<sup>230</sup> described a sinoauricular block and ventricular escapes in a case of syphilitic heart disease with bundle-branch block with a spontaneous return to sinus rhythm four months later.

## 8. SPECIAL TREATMENT

1. *A New Blood Supply to the Heart By Operation*: Robertson<sup>231</sup> reestablished the cardiac circulation on dogs during experimental progressive coronary occlusion, the myocardial nutrition distinctly depending on the vessels contained in the pericardial adhesions. Beck and Tichy<sup>232</sup> experimentally produced a collateral circulation to the heart by operation, and when this was present, almost total occlusion of both coronary arteries was effected with recovery; they believed that their experiments have demonstrated that the collateral vascular bed can become the major source of blood supply to the heart. Moritz and Beck<sup>233</sup> stated that the data, chiefly pathological, derived from their study of 94 cases of major coronary occlusion would indicate that there was a period after the first coronary occlusion in the lives of 43 individuals when the production of an extracardiac coronary circulation might have been feasible and beneficial. Beck,<sup>234</sup> on the basis of his experimental work, gave a collateral vascular bed to a patient with coronary sclerosis on February 13, 1935; seven months after operation the patient worked, had no pain, and claimed to be cured. By September, 1935, seven such cases had been operated on, but a sufficiently long interval had not elapsed to comment on the other cases, and Beck especially emphasized the point that this work was still in the experimental stage.

2. *Total Ablation of the Normal Thyroid Gland*: Blumgart, Berlin, Davis, Riseman, and Weinstein<sup>235</sup> stated that the beneficial results achieved by this procedure in 75 patients with



congestive heart failure and angina pectoris warrants its further application; the precautions to be exercised in the selection of cases, the pre-operative, operative, and postoperative management and the treatment of the various complications must be rigidly adhered to for the best results. Blumgart, Riseman, Davis, and Weinstein<sup>236</sup> demonstrated the value of this procedure in the treatment of patients with arteriosclerotic heart disease as ten patients who would otherwise be forced to spend the greater part of their lives in bed were enabled to return to remunerative occupations or housework. Levine and Eppinger<sup>237</sup> reported that in 12 cases of severe intractable heart disease treated by total ablation, some benefit was obtained, but the state of the lesions was so far advanced that in most cases the improvement did not last an appreciable length of time. Hertzler<sup>238</sup> editorially commented that these operations have resulted in the demise of two very tenacious fetishes, that the basal metabolic rate does not tell about what the thyroid gland is doing to the individual and that there is no limit to the liberties the surgeon may take in the removal of the gland. Berlin<sup>239</sup> summarized his surgical experience with total ablation and stated that 70% to 90% of the patients with either angina pectoris or congestive heart failure have shown marked or moderate improvement following the operation but extreme care must be exercised in the selection of the patients. A recent editorial<sup>240</sup> stated that the economic and social status of the individual constitute an important element in the selection of patients for this operation, that there is no evidence as yet to show that the operation prolongs the life of a patient with angina pectoris and therefore cannot be recommended with this in view, and that it is very important that the general application of this operation by those unfamiliar with the selection of patients or the surgical technic is utterly inadvisable.

4758 N. Kimball Avenue.

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## THE ANTIDOTAL ACTION OF POTASSIUM PERMANGANATE

Robert A. Hatcher, New York (*Journal A. M. A.*, Aug. 17, 1935), asserts that potassium permanganate has a distinct but limited field of usefulness in the treatment of cases of poisoning. Fairly dilute solutions are irritant and concentrated solutions are caustic, while a large dose may cause death. Among the more common alkaloids that give rise to fatal poisoning after their oral administration and for which potassium permanganate may be useful are aconitine, amidopyrine, antipyrine, morphine and strychnine. To these may be added picrotoxin and probably picrotoxin-like substances (wild parsnip). Potassium permanganate may be used for the destruction of hydrocyanic acid and of potassium or sodium cyanide in the stomach, but only in an alkaline solution. The reaction of potassium permanganate with different poisons varies widely, depending on whether they are present in acid, neutral or alkaline solutions. It should not be depended on to destroy all the poison, and its use should be followed by evacuation of the stomach. Potassium permanganate may be administered orally in concentration varying from 1:2,000 to 1:5,000, depending on the dose required; and 1:5,000 may be used for washing the stomach. Potassium permanganate is useless in cases of poisoning by atropine, cocaine or yellow phosphorus in substance, or by any one of the greater number of the hypnotics; it may be useful in washing the stomach after poisoning by alurate, dial and possibly some others; not after barbitol, phenobarbital, amytal, neonal, sulphonal or hydrated chloral poisoning. It may be used for washing the stomach in cases of poisoning by phenol or creosote, but it cannot be administered safely in sufficient amounts to decompose an otherwise fatal dose of either. The dose of potassium permanganate and the concentration of the solution should be governed by the nature and the quantity of the substance which it is designed to decompose, and with reference to the other contents of the stomach. Potassium permanganate decomposes protein much less rapidly than it decomposes certain poisons, tannin (from tea and coffee) almost instantly, diluted alcohol within a few minutes and sugar (sucrose) very slowly. There is no justification for the intravenous, subcutaneous or intramuscular injection of potassium permanganate for the destruction of any poison in the circulation.

## DINITROPHENOL IN TREATMENT OF OBESITY

M. L. Tainter, A. B. Stockton and W. C. Cutting, San Francisco (*Journal A. M. A.*, Aug. 3, 1935), and their collaborators treated 170 unselected obese patients with sodium dinitrophenol (2-4), administered by mouth for an average of eighty-eight days each, in an average daily dose of 0.34 Gm. The average increase in metabolic rate was about 11 per cent for each 0.1 Gm. daily dose. The average loss of body weight was 17.1 pounds for each patient, with an average rate of loss of 1.4 pounds weekly. Patients resistant to dietary or thyroid measures lost weight as well as those previously untreated, but patients who had resisted combined dietary

and thyroid therapy lost less rapidly on dinitrophenol than the other groups. The main symptoms of therapeutically effective doses of dinitrophenol were those of extra heat production; namely, sweating, flushed skin, concentrated urine, and sensations of warmth. These symptoms could be controlled to some extent by building up the dosage gradually to the therapeutic level and by ensuring adequate fluid intake. No evidence was obtained in these patients that dinitrophenol affected the blood cells, as shown by blood counts and clinical observations. Side actions, consisting of skin rashes or peripheral nerve changes, were observed in about one-fourth of the patients receiving high doses, or in about one-seventh of the entire series. These side actions may be largely avoided by stopping medication promptly on the first appearance of any of these changes. Dinitrophenol is a highly effective drug for increasing the metabolic rate and reducing excessive body weight. Medication with this drug is probably indicated mainly in those cases in which other potentially less toxic means of treatment cannot be successfully applied. For those obese patients who are resistant or unsuited to other therapy, dinitrophenol is a potent and valuable therapeutic agent.

## OBSERVATIONS ON TREATMENT OF ACNE VULGARIS

According to Jeffrey C. Michael, Houston, Texas (*Journal A. M. A.*, Aug. 3, 1935), acne vulgaris is a syndrome the cause of which is a complex of various interacting factors. In juvenile patients the physiologic activity of the gonads appears to be the most important factor. In older patients minor functional and organic disorders apparently but not indisputably play a definite role in the causation. The recent tendency to depend less on roentgen therapy and more on general and local measures should be encouraged. While the roentgen ray is the most certain means of eradication of the lesions, recurrences are too frequent to make this treatment entirely satisfactory. In juvenile patients recurrences are especially frequent and for this reason it is believed that the roentgen ray should not be used except under unusual circumstances. For older patients, especially those between 18 and 25, roentgen therapy is the method of choice. It should be supported by an industrious search for and attention to any probable etiologic factors.

## WHAT GOVERNMENT CONTROL OF MEDICINE MEANS

It spells the end of states' rights and makes possible the establishment of government by force and intimidation. It does not increase opportunities as some of the promise-everything politicians would have us believe. On the contrary, it lessens opportunities, for, instead of being free to conduct our personal affairs, we are subject to licensing and constant regulations, all according to the whims of the politicians in power.

History shows clearly that centralized political powers breed arrogance and despotism.

## Society Proceedings

### COOK COUNTY

#### CHICAGO MEDICAL SOCIETY

*Regular Meeting Wednesday, February 5, 1936*

#### SYPHILIS PROGRAM

- Treatment of Congenital Syphilis..Harold Rosenbaum  
Discussion—Alfred S. Traisman.  
Treatment of Early Syphilis.....Oliver S. Ormsby  
Discussion—Clark W. Finnerud.  
Treatment of Syphilis of the Central Nervous System  
.....George W. Hall  
Discussion—Lewis J. Pollock, Ralph C. Hamill, and  
Francis J. Gerty.

*Regular Meeting, Wednesday, February 12, 1936*

#### GENITO-URINARY PROGRAM

- Borderline Problems in Diagnostic Urology.....  
.....Harry Culver  
Discussion—Vincent J. O'Connor, Irvin S. Koll, Ed-  
ward W. White, and Alfred E. Jones.  
Bladder Tumors.....Joseph S. Eisenstadt  
Discussion—Ben E. Fillis, and T. G. McDougall.  
Transurethral Resection in Various Types of Bladder-  
neck Obstruction.....Herman L. Kretschmer  
Discussion—Robert H. Herbst, Charles M. McKenna,  
and Harry C. Rolnick.

*Regular Meeting, Wednesday, February 19, 1936*

#### PROGRAM

- Brucellosis .....  
Wilburt C. Davison, Dean, Duke University School  
of Medicine, Durham, North Carolina  
Hypoglycemic Reactions in Childhood.....  
W. McKim Marriott, Dean, Washington University  
School of Medicine, St. Louis, Mo.  
The Medical Citizen.....  
Nathan V. Van Etten, Speaker, House of Dele-  
gates American Medical Association

*Regular Meeting, Wednesday, March 4, 1936*

#### ANESTHESIAS

We are fortunate in having as our guest speaker two outstanding writers and teachers on the use of anesthetics.

#### Inhalation Anesthesia

Volatile ether—Divinyl ether

Gaseous—nitrous oxide

ethylene

cyclopropane

Including intratracheal administration.....

Ralph M. Waters, M. D., Prof. of Anesthesia, Univ. of Wisc.

#### Intravenous—Evipol Sodium

Pantothal Sodium —

#### Rectal—Colonic ether

Avertin

#### Regional Methods—Spinal

Sacral

Cervical

Preliminary medication for each agent and method will also be discussed..John S. Lundy, A. B., M. D. Prof. of Anesthesia, Mayo Foundation, Univ. of Minn. Graduate School.

Discussion—Arno B. Luckhardt and Isabella C. Herb.

## Personals

Dr. Harry L. Huber addressed the Detroit Pediatric Society on February 5. His subject was "The Allergic Child."

Dr. Edwin W. Ryerson addressed the Peoria Medical Society February 18 on "Shoulder Disabilities" and "Causes of Low-Back Pain."

Dr. Joseph E. F. Laibe addressed the DeWitt County Medical Society on the subject of "Nephritis" at Clinton on February 17.

Dr. James H. Hutton addressed the Champaign County Medical Society on Thursday, February 13, on Glandular Therapy and Hypertension.

Dr. Frank B. Kelly gave a paper on "Etiology and Treatment of Pneumonia and Empyema" before the Will-Grundy County Medical Society on February 26.

Dr. William L. Beecher addressed the Chicago Society of Laboratory Technicians on February 20, subject "The Use of the Laboratory to the Allergist."

Dr. Wilber E. Post gave a paper on "Bright's Disease" before Will-Grundy County Medical Society on January 29.

Dr. John R. Harger spoke on "The General Practitioner and the Acute Abdomen" and Clarence A. Neymann on "Modern Concepts of the Classification of Nervous and Mental Diseases and Their Treatment" before Carroll County Medical Society on January 30.

Dr. Edwin W. Ryerson addressed the Staff of the Mayo Clinic, on January 30, on the subject of "The Development of the Surgery of Infantile Paralysis During the Last 35 Years."

Dr. M. Herbert Barker gave an address on "Pneumonia and Its Treatment," before the Winnebago County Medical Society, February 11.

Dr. Kellogg Speed, Chicago, discussed "Skull Fractures" before the Kankakee County Medical Society in Kankakee, February 20.

Dr. M. Herbert Barker, Chicago, discussed pneumonia before the Whiteside County Medical Society, January 23, in Sterling.



Dr. Frederick G. Dyas, Chicago, discussed goiter before the DuPage County Medical Society in Elmhurst, January 15.

Dr. Harry M. Richter, Chicago, discussed surgical aspects of gallbladder disease before the Peoria City Medical Society, January 21.

Dr. Luke W. Hunt, Chicago, discussed "Scarlet Fever Immunization and Treatment" before the Kankakee County Medical Society, January 9.

Dr. Joseph Brennemann, Chicago, addressed the Sangamon County Medical Society, February 6, in Springfield, on "Pneumonias of Childhood."

At a meeting of the Perry County Medical Society in DuQuoin, February 6, Drs. Quitman U. Newell and Oswald P. J. Falk, St. Louis, discussed cancer and cardiovascular diseases.

Dr. Porter P. Vinson, Rochester, Minn., discussed "The Newer Findings in Pulmonary Disease With the Use of the Bronchoscope" before the Peoria City Medical Society, February 4.

At a meeting of the Adams County Medical Society in Quincy, February 10, Dr. Frank Smithies, Chicago, spoke on ulcerative lesions of the intestine.

Among others, Dr. Edward V. L. Brown addressed the Chicago Ophthalmological Society, February 17, on "The Apparent Increase of Hyperopia Before Nine Years of Age."

Dr. Owen H. Wangensteen, Minneapolis, discussed "Intestinal Obstruction" before the Englewood branch of the Chicago Medical Society, January 7.

The Springfield Medical Club, Springfield, will be addressed March 17 by Dr. Anton J. Carlson, Chicago, on "The Control of the Endocrine Glands."

Dr. William T. Coughlin, St. Louis, discussed "Cancer of the Breast" before the Macoupin and Montgomery county medical societies in January in Carlinville.

At a meeting of the Christian County Medical Society, January 30, Drs. Garwood C. Richardson and William B. Serbin, Chicago, discussed recent advances in obstetrics and obstetric hemorrhages, respectively.

Speakers at the quarterly meeting of the Henry County Medical Society in Cambridge, February

13, were Drs. Ford K. Hick and Charles M. McKenna, both of Chicago, on pneumonia and prostatitis, respectively.

A symposium on contact dermatitis was presented before the Chicago Society of Allergy, February 17, by Drs. Samuel J. Zakon, Chicago, Louis A. Brunsting, Rochester, Minn., and Carliss Malone Stroud, St. Louis.

The Chicago Roentgen Society was addressed, February 13, by Drs. Alfred E. Jones and Philip Rosenblum on "Foreign Bodies in the Genito-Urinary Tract," and Warren W. Furey, "Intestinal Obstruction as a Roentgenological Problem."

Dr. Frank L. Rector, Evanston, field representative of the American Society for the Control of Cancer, will in the near future conduct a survey of cancer in Illinois at the request of the Illinois State Medical Society.

Dr. Daniel H. Levinthal, Chicago, discussed "Treatment of Poliomyelitis in the Convalescent Stage" before the Bureau County Medical Society in Spring Valley, February 4; he also showed a motion picture on "Reconstruction Surgery for Residual Paralysis following Poliomyelitis."

Dr. Robert D. Schrock, Omaha, discussed "Treatment of Sprengel's Deformity" and "Immediate Bone Grafting Following Resection of Benign Bone Tumors" at a meeting of the Chicago Orthopedic Society, February 14. Dr. Samuel J. Lang discussed "The Mechanics of the Back and Its Relation to Backache."

Speakers before the Carroll County Medical Society, January 30, were Drs. John R. Harger and Clarence A. Neymann, Chicago, on "General Practitioner and the Acute Abdomen" and "Modern Concepts of the Classification of Nervous and Mental Diseases and Their Treatment" respectively.

A joint meeting of the Chicago Tuberculosis Society and the Chicago Roentgen Society, January 9, was addressed by Drs. Robert S. Berghoff and Hollis E. Potter on "Diagnostic Value of X-Rays in Diseases of the Chest" and "Importance of the Caseous Lesion in Tuberculosis," respectively.

The Chicago Pathological Society was addressed, January 13, among others, by Dr. Harold R. Ostrander on "Multiple Heterogenous

Primary Malignant Tumors in One Host: Hypernephroma of the Kidney and Carcinoma of the Prostate."

At a meeting of the St. Clair County Medical Society in Belleville, February 5, Dr. Charles H. Eyermann, St. Louis, discussed "Allergy in General Practice," and Dr. Rolland L. Green, Peoria, president-elect, state medical society, February 6, in East St. Louis, social aspects of medicine.

At a meeting of the Chicago Pathological Society, February 10, Francis B. Gordon and Dan H. Campbell, department of bacteriology, University of Chicago, among others, were the speakers on "Active and Passive Immunity in Experimental Poliomyelitis" and "Antigenic Polysaccharides from Helminths," respectively.

Speakers before the Chicago Society of Internal Medicine, January 27, were Drs. Edmund F. Foley, Robert W. Keeton, Duane Darling and Aaron B. Kendrick, Ph.D., on "Alterations in Serum Proteins as an Index of Liver Failure"; Drs. William A. Brams and Jacob S. Golden, "Clinical Significance of Venous Pressure," and Carl A. Dragstedt, "An Experimental Study of the Mechanism of Anaphylaxis."

Dr. M. F. Engman, Jr., Washington University, St. Louis, addressed the Madison County Medical Society on the subject of "Eczema" February 7, 1936 at St. Elizabeth's Hospital, Granite City, Illinois.

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### News Notes

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A. Abt professor of pediatrics, Northwestern University School of Medicine, has presented his library on the diseases of children, collected over a period of forty years, to Northwestern. The collection comprises 3,500 volumes and is valued at approximately \$25,000.

Two evening clinics for women needing antepartum care were recently opened under the direction of the city health department. Free treatment will be given to women who work during the day. At the opening of the first clinic at 6312 Wentworth Avenue, nurses and physicians on the staff of the Chicago Lying-in Hospital conducted examinations and lectured on antepartum care.

The committee for mental hygiene of the Chicago Medical Society is arranging a special edu-

cational program on mental hygiene for lay persons. Radio talks, newspaper articles and addresses for parent-teacher meetings will be used, and arrangements have been made with Dr. Edward F. Dombrowski, managing officer of the Chicago State Hospital, to hold clinics for the branches of the Chicago Medical Society.

As part of a recently established plan to provide indigents and low income families in Peoria with more adequate medical service, newspapers report that the city hall has made available two rooms for the newly created Peoria Medical Clinic. Physicians of the city have agreed to give their services gratuitously through the clinic, which will be financed with appropriations from the Community Fund and county agencies. The Community Fund has stipulated that an executive committee of physicians and lay persons be established.

The council of the Chicago Medical Society, February 11, adopted a resolution endorsing Dr. Charles E. Humiston as candidate for president-elect of the American Medical Association. The resolution reads as follows:

Whereas, The Illinois State Medical Society through its Council by unanimous vote has endorsed Dr. Charles E. Humiston as candidate for President-Elect of the American Medical Association and instructed its Delegates to urge his election at the Kansas City meeting; therefore be it

Resolved, By the Council of the Chicago Medical Society in regular meeting assembled, that said action of the Illinois State Medical Society in recognizing the superior qualifications of our distinguished fellow member for the high office of President of the American Medical Association be, and hereby is, commended, approved and endorsed.

The Chicago Society for the Control of Rheumatic Disease sponsored a symposium on chronic arthritis at the meeting of the Aux Plaines branch of the Chicago Medical Society, January 10. Speakers were Dr. Ralph Pemberton, professor of medicine, University of Pennsylvania Graduate School of Medicine, Philadelphia, on "The Medical Management of Chronic Arthritis," and Dr. Robert B. Osgood, professor of orthopedic surgery, emeritus, Harvard Medical School, Boston, "The Orthopedic Management of Chronic Arthritis." Dr. Ernest E. Irons, dean and clinical



professor of medicine, Rush Medical College, and Dr. John D. Ellis, associate in surgery, Northwestern University School of Medicine, discussed the papers.

As a part of an extensive building program at the Manteno State Hospital, Manteno, contracts have been let for twelve ward buildings, diagnostic building, hospital for the tuberculous, two hydrotherapy wards, mechanical building and two dormitories for employees. The total amount to be expended will be about \$3,700,000, with contracts calling for completion of the work by December 15. Most of the buildings which were erected under this program last year at a cost of \$1,900,000 are now occupied and include six ward buildings, hospital building store building and laundry. A general kitchen was completed, as well as the installation of mechanical equipment. With the additions, the bed capacity of the hospital has been increased by 1,600.

The March issue of the Radiologic Review & Mississippi Valley Medical Journal (Quincy, Ill.), is the ninth annual "Radium Number" of that publication. It is entirely devoted to Radium containing ten original articles, especially written for this issue by leading American Radium Therapists on various phases of Radium Therapy. There are contributions by Jones of Cleveland, Schreiner and Wehr of Buffalo, Soiland of Los Angeles, Murphy of Minneapolis, Fox of Dallas, Levin and Sittenfield of New York, Swanberg of Quincy, Simpson of Chicago, etc.

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## Deaths

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WESTLEY W. HALLIBURTON, Alton, Ill.; Missouri Medical College, St. Louis, 1878, member of the Illinois State Medical Society; aged 84; died, Dec. 28, 1935, in St. Joseph's Hospital, of cerebral hemorrhage.

HENRY KENT HOOKER, Clinton, Ill.; Chicago Homeopathic Medical College, 1903; a Fellow, A. M. A.; served during the World War; for twelve years member of the high school board of education, and city physician; connected with the Edmonson Clinic; aged 60; on the staff of the John Warner Hospital, where

he died, Nov. 21, 1935, following an operation for appendicitis.

MILLARD HUNTER FORTNEY, Arcola, Ill.; Loyola University School of Medicine, Chicago, 1919; member of the Illinois State Medical Society; mayor; served during the World War; formerly school board trustee; aged 47; died, Dec. 1, 1935, of septicemia, which developed from an injury received in a fall.

GEORGE DAVID LOCKIE, Springfield, Ill.; National Medical University, Chicago, 1898; member of the Illinois State Medical Society; veteran of the Spanish-American and World wars; aged 65; on the staff of St. John's Hospital, where he died, Dec. 25, 1935, of multiple sclerosis.

JOHN JOSEPH McLAUGHLIN, Chicago; Long Island College Hospital, Brooklyn, 1879; aged 77; died, Dec. 30, 1935, of myocarditis.

SILBER CHARLES PEACOCK, Chicago; Rush Medical College, Chicago, 1925; a Fellow, A. M. M.; served during the World War; assistant attending physician at the Children's Memorial Hospital, and acting director of the Otho S. A. Sprague Memorial Institute Laboratory; head of the department of pediatrics, Henrotin Hospital; on the staff of the Ravenswood Hospital; aged 41; was found in his car murdered, January 3, after he had responded to a false telephone call to attend a sick child.

STEPHEN ROMAN PIETROWICZ, Evanston, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898; clinical professor of medicine, Loyola University School of Medicine, Chicago; at one time member of the school board; formerly superintendent of the Chicago State Hospital; fellow of the American College of Physicians; aged 62; chief of staff of St. Mary's of Nazareth Hospital, Chicago, where he died, January 12, of an abscess of the pancreas, diabetes mellitus and chronic nephritis.

EDWARD E. G. WEILAND, Bloomington, Ill. (licensed in Illinois in 1895); aged 67; died, Dec. 14, 1935, as the result of injuries received in a fall.

GEORGE WHITE, Chicago; Kentucky School of Medicine, Louisville, 1881; aged 80; died, Dec. 17, 1935, in the Roseland Community Hospital, of cerebral hemorrhage.

FRANCIS A. WILLIAMS, Ritchey, Ill.; Columbus Medical College, 1891; aged 80; died, Dec. 4, 1935, of arteriosclerosis.

ERNEST ELMER WISHARD, Chicago; Medical College of Indiana, Indianapolis, 1900; aged 60; died, Nov. 27, 1935, of acute coronary artery occlusion.

LUTHER F. WORLEY, Mazon, Ill.; Missouri Medical College, St. Louis, 1887; aged 77; died, Nov. 22, 1935, of chronic myocarditis.

HARRY RALPH WORMLEY, Rockford, Ill.; Rush Medical College, Chicago, 1906; a Fellow, A. M. A.; member of the American Academy of Ophthalmology and Oto-Laryngology; on the staff of the Rockford Hospital; aged 56; died suddenly, Nov. 20, 1935, of heart disease, while on a hunting trip in Iowa.

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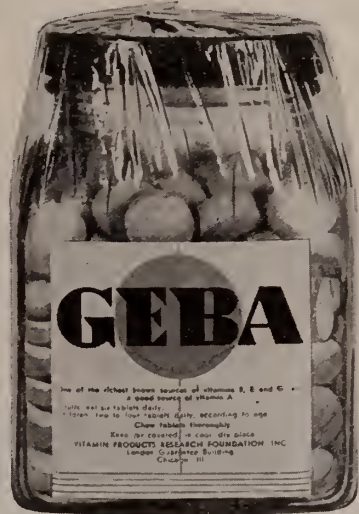
—J. S. McLester: "Nutrition and Diet in Health and Disease."

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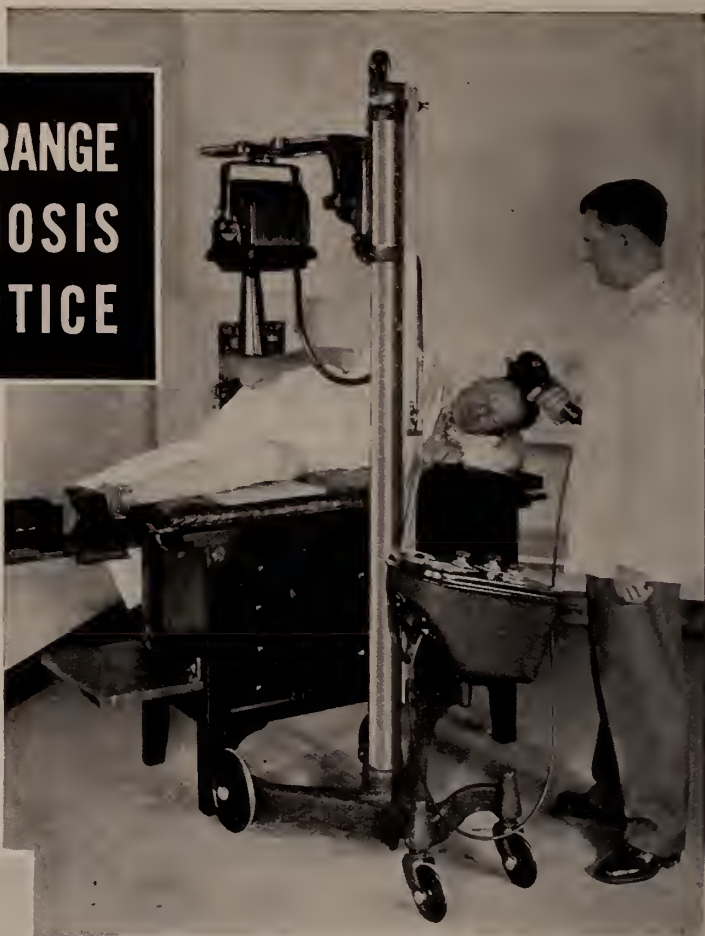
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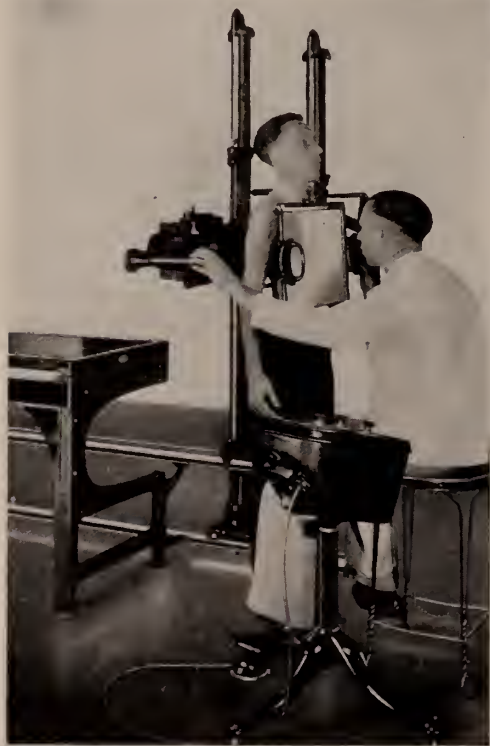


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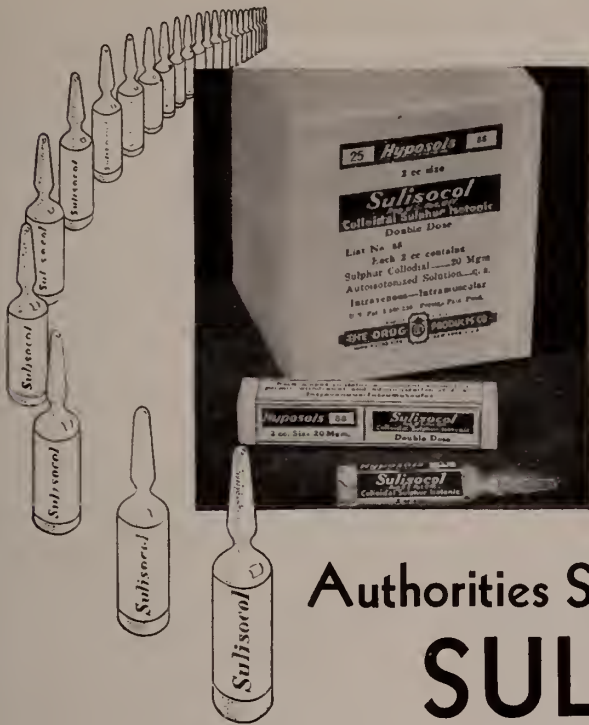
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# PASSIVE IMMUNITY IN INFANTS AND THEIR RESPONSE TO DIPHTHERIA TOXOID

Joseph Greengard and Harold Bernstein, Chicago (*Journal A. M. A.*, Aug. 3, 1935), made preliminary Schick tests on seventy-four infants. Vaccination with diphtheria toxoid was carried out in both the positive and the negative reactors. The negative reactors, i. e., those who still retained their passive immunity, demonstrated a positive Schick test in two-thirds of the cases, the course of their passive immunity corresponding closely to that of infants who have not been vaccinated. The positive reactors, control series, turned negative and remained so in 88 per cent of the cases. The authors therefore conclude that passive immunity in infants interferes with the development of antitoxin in response to vaccination with diphtheria toxoid. Such vaccination, therefore, should not be done in young age groups without preliminary Schick testing.

# ROENTGEN DIAGNOSIS OF TUMORS OF THE BREAST

Max Ritvo, P. F. Butler and E. Everett O'Neil, Boston (*Journal A. M. A.*, Aug. 3, 1935), state that roentgen examination affords an easy and reliable method of studying the female breast. Neoplasms of the breast and other pathologic processes may be visualized. The changes incidental to menstruation, pregnancy and the menopause are also demonstrable. The roentgen examination requires no special preparation of the patient and causes no pain or discomfort. Cheatle and Cutler's classification of mezoplasia and cystiphorous desquamative epithelial hyperplasia is used to replace "chronic mastitis" and "cystic mastitis," these terms being unsatisfactory in the light of recent studies. The authors suggest the name cystoplasia to denote the condition of cystiphorous desquamative epithelial hyperplasia. They do not believe at present that the early stages of malignancy or beginning malignant degenera-

tion in formerly benign tumors are demonstrable on the roentgenogram. Tumor masses can be outlined and the character and extent of the lesion determined. The existence of a neoplasm may be shown by roentgen examination before it can be definitely diagnosed by clinical means. Glands in the axilla and extension of malignant growth to the ribs are demonstrable on the roentgenogram. Roentgen studies greatly lessen the need of diagnostic operation and repeated palpation of the breast and give information of value in the diagnosis, prognosis and treatment of lesions of the breast.

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Eighty-Sixth Annual Meeting at Springfield, May 19, 20, 21, 1936

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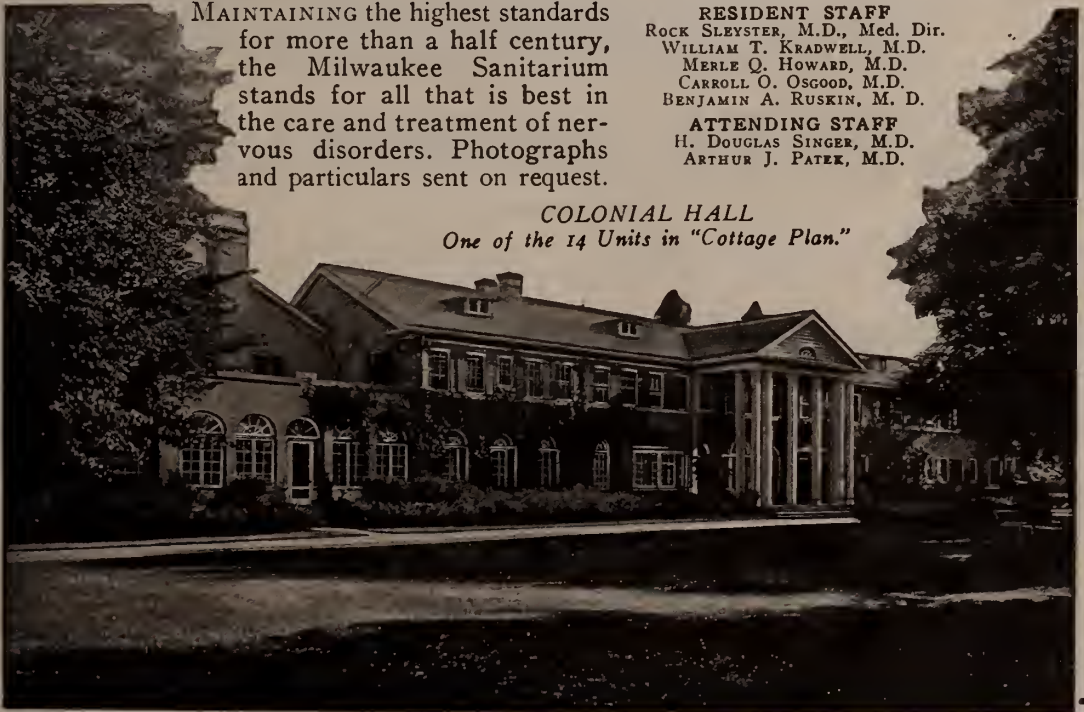
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# CANNED FOODS AND THE PUBLIC HEALTH

## III. Chemical Preservatives

• Some of our readers have inquired as to whether or not chemical preservatives are used in commercially canned foods. In certain instances, this question was inspired by the fact that "canning compounds" were formerly sold for use in home canning and preserving operations. Such compounds, however, are rarely used by the housewife of today, and never by commercial canners.

We wish to state here that *no preservatives are used in commercially canned foods.*

Spoilage of food is principally caused by the growth and multiplication in food of microorganisms such as yeasts, molds, or certain types of bacteria. These microorganisms depend upon the food they inhabit for their nutrition and their life processes produce changes in the chemical or physical characteristics of food, or both. These changes lead us to state that the food has "spoiled".

Like other living organisms, these spoilage microorganisms can grow and multiply in a food only as long as conditions remain favorable for their existence. If any environmental factor, such as temperature, moisture or acidity, becomes unfavorable, these spoilage organisms are destroyed, or their development is inhibited.

All methods of food preservation have a common underlying principle; they all alter some factor or factors in the food environment so as to render conditions unfavorable

for the growth or development of spoilage organisms in the food.

Thus, foods may be preserved by freezing or refrigeration, which serves to lower the temperature below that optimum for growth of certain spoilage organisms; dried foods keep because the moisture content has been reduced to an unfavorably low level; certain fermented foods keep because of the development of high acidity. All of these methods produce changes in the environment in which the food spoilage organisms must live.

Commercial canning is a method of food preservation in which the temperature factor in the environment is raised to a level above that optimum for growth of spoilage microorganisms. Thus, canned foods keep because in their preparation they are subjected to heat processes in hermetically sealed containers. The thermal processes raise the temperature of the foods to those temperatures at which the most resistant spoilage organisms present cannot grow or survive. (1)

The hermetic seal insures protection against future infection of the food by such organisms.

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(1) The Microbiology of Foods, F. W. Tanner, Twin City Pub. Co., Champaign, Ill., 1932

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10:00 A.M.	Breast	Breast	Bottle	Bottle
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1. Jour. of Biological Chemistry, Vol. 104, No. 2, Feb., 1934.
2. Biochemical Journ., Vol. xxix, No. 2, Feb., 1935.
3. Journ. of Morphology, Vol. 56, No. 2, Sept., 1934.
4. Memoirs Univ. Calif., Vol. 8, 1927.
5. Proc. Nat. Acad. Sci., Vol. 2, p. 377, 1925.
6. J. Exp. Zool., Vol. 45, p. 159, 1926.
7. J. Nutrition, Vol. 1, p. 311, 1929.
8. Am. J. Anat., Vol. 52, p. 153, 1933.
9. Endokrinologie, Bd. 7, S. 91, 1930.
10. Am. J. Anat., Vol. 52, p. 153, 1933.

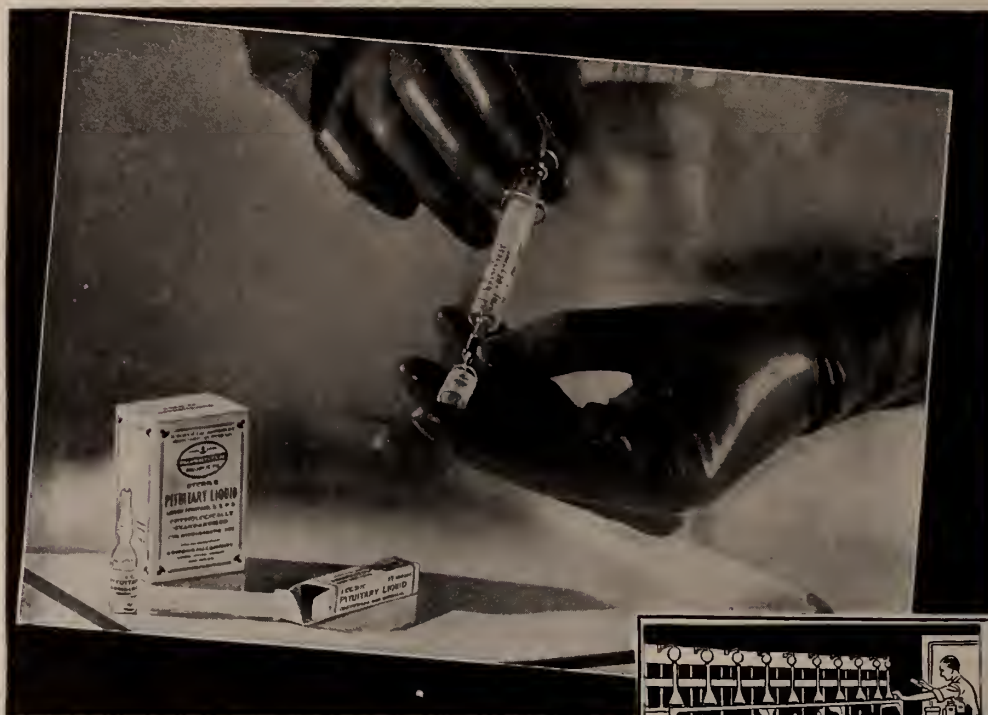
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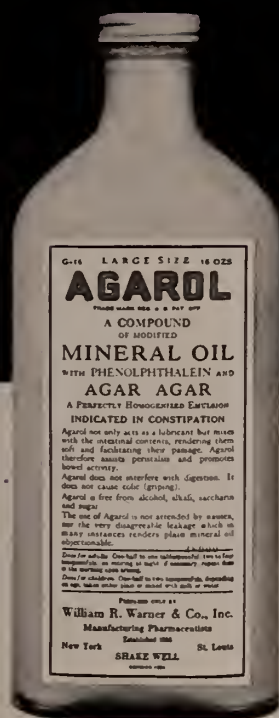
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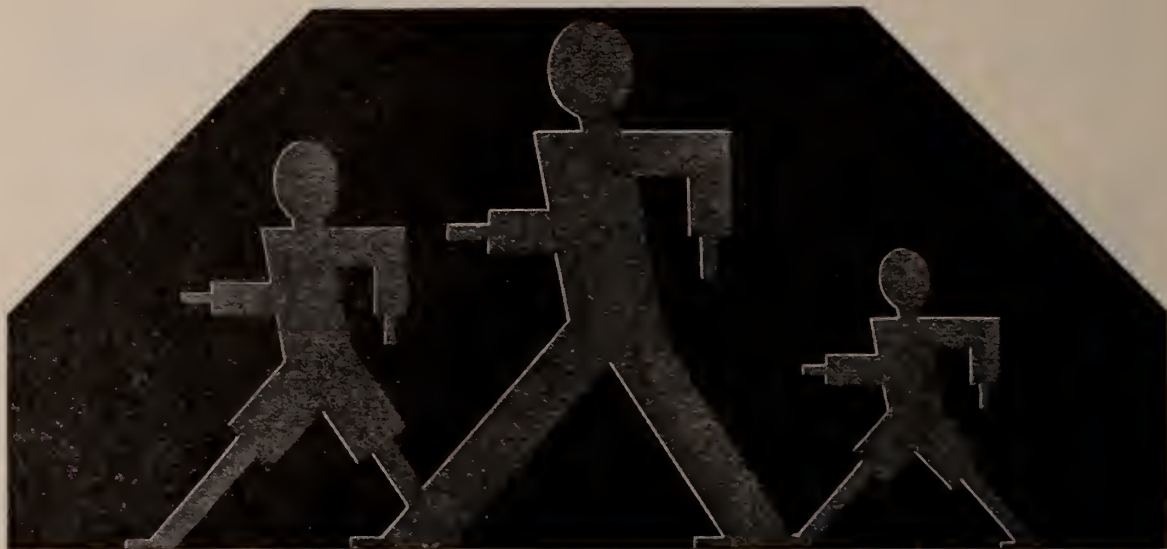
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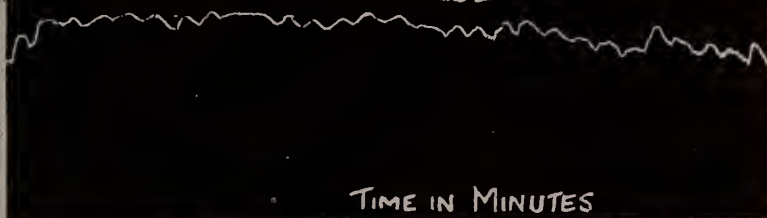
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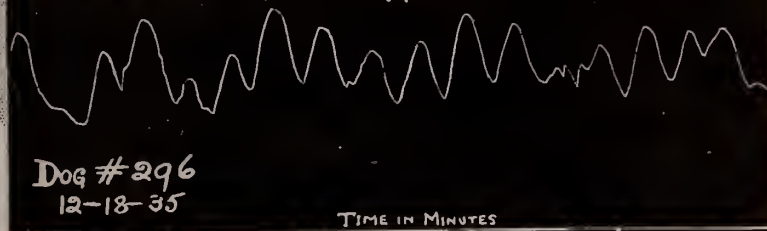
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# ILLINOIS MEDICAL JOURNAL

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THE ILLINOIS STATE MEDICAL SOCIETY

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## Editorials

### POLITICS PLAYS TOO LARGE A PART IN CARE OF THE INDIGENT

Propagandists for state medicine seem to think that they have the medical profession hoist by its own petard when citation is made and the accusation brought forth that the United States has nurtured "state medicine" for over a century through the establishment and maintenance of community, city, country or state hospitals or sanitariums for the care of the insane, of the indigent tubercular or venereal disease patients and of the general county charity hospitals for the indigent. State or county or community manufacture and distribution of vaccines, toxoids and biologics in general are also considered state medicine. To a certain extent this is true, to a certain other it is absolutely false. In the beginning, establishment of state financed institutions for the insane were a direct growth of the doctrine that the insane are criminals and as such should be confined in penal institutions. The especial prisons for the insane were for years national scandals the world over, and the devices for restraint of the violent ranged from simple fetters to monstrosities of torture. To punish the wrongdoer was the creed of the world and the mentally deranged went along with the rift. It is only about a hundred years since insane prisons were changed to insane asylums or hospitals. The care of the insane was not a competitive proposition, i.e.—it has never been a custom to hold the actual economic care of the lunatic an economic burden for the physician any more than it would be to compel the medical profession to finance prisons and reformatories, though their poor, if any, recompense plays a large part. History of institutions for the care of the mentally deranged have not been free from abuse or scandal or ineptitude during the years of their political control, and with a few exceptions today, state governments can not be proud of the treatment accorded their insane charges. In

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Society proceedings and news items and changes in the mailing list to Dr. Henry G. Ohls, Managing Editor, 1618 Juneway Terrace, Chicago.

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those instances where the hospitals for the insane are under *medical* rather than *political* control, the results have been much more favorable. As a matter of fact it will be a happy day for the afflicted insane when control of all institutions for these unfortunates, whether financed by tax payers or personal charity are turned over completely to the medical profession. The indigent insane are public charges and even more a public risk, because of their utter irresponsibility and other manifest menaces arising from their disease.

The recent building of government hospitals for the hospitalization and treatment of World War veterans has even now proven the indubitable economic waste and doubtful scientific value of such procedure. This is state medicine and state medicine accepted with protest and without superiorly beneficial eventualities. There is no question but that, try as the Army and Navy may, politics manages to stir up entirely too big a spoonful when it comes to control of these institutions for which the taxpayers pay in gobs and the veterans do not receive any spectacularly unusual care. By the very nature of things, they can not. In the government hospital situation is one of the very best demonstrations of the burdens of state medicine. Incompetency is not laid at the doors of these institutions but that is more because of the efficient medical service of United States Army, Navy and Marine Medical corps than because the government is running the hospitals.

Epitomized it might be said that while the forms of state medicine mentioned have been functioning with more or less pain for a century or so there is no evidence to the contrary and a great deal to uphold the theory that even these examples would function far better if in the hands entirely of the organized medical profession with a few state endowments for medical and surgical and scientific skill and a few less to maintain unskilled or partially skilled non-medical labor at the expense of the mentally ill, or the disabled heroes of the world war. Nor is there any question but that the medical profession functioning through the family physician should have charge of and should supervise health examinations of every nature from the pre-school child, up through the ranks of the public schools and also of adults; as well as the administration and distribution of vaccines,

toxins and biologics and the authorization and supervision of all laboratory tests for existence of disease when such is indicated.

Corporations practicing medicine, lay corporations at that, are another instance of state medicine attempting to foist itself upon the public. No matter what their initiative principle, their inevitable trend is to hit the taxpayer in one way or another. It is true that there is an inequitable distribution of medical cost at present. But the balance will never be regained by increasing taxes and decreasing taxpayers. Every doctor put out of practice because his patients are cared for by taxes to which he himself pays and pays, makes one less taxpayer to pay the taxes by which those patients are cared for. And whether the corporation practicing medicine is a free or part-pay-lay-controlled clinic, or a state subsidized hospital, or a lodge, or a contract insurance group, or an employment center coterie, the circle runs the same.

---

#### THE HIGH COST OF MEDICAL CARE GOES TO EVERYBODY BUT THE DOCTOR

Upholding the continuous contention of this journal that the money spent in "the high cost of medical care" goes to everybody but the doctor please note this quote from the *Journal of the Missouri State Medical Association* in which Dr. E. Lee Miller of Kansas City, Mo., remarks:

"That it costs too much to be sick is true. The sick services that can be thus indicated are the high cost of hospital and nursing service which we all admit is at times necessary but where charges have become excessive. Nearly every physician can subscribe to an experience like this. The patient is a cholecystectomy candidate and wants and needs some careful watching, so a trained nurse is called. The period of convalescence is two weeks. A private room costs \$84; operating room, \$15; laboratory, \$5; drugs and dressing, \$15. Two nurses at \$42 per week each cost a total of \$168; so it is plain to be seen that if the patient is a very sick man it costs him \$287 before he has one penny available with which to pay a consultant, an anesthetist or surgeon. Let us say that the surgeon charges \$150; the anesthetist \$15 and the consultant \$50 for a trip away from home to the hospital. Then the cost of all three of the doctors is less than the cost of the nurses

*alone!* And can any layman even dare believe that the services of the physician are not the most valuable contribution to the patient's welfare? And what manner of patient is it who comes in from the farm to town and to a hospital, who has \$452 available for such a financial outlay? Could even a foundation indict the doctor for overcharging when with \$287 spent before the doctor's fees are even considered, the doctor's charge is less than the nursing expenses? Hospital cost is high and nursing service with the now adopted twelve-hour duty is being paid a sum that depression patients can not stand long. It is true that the nurse is invaluable in many cases but in times like these her charges are severe. The physician gets no remuneration until all these other service obligations are met. How many people in the average community can meet a cost of \$452 without difficulty? The doctor is only one-third of the cost of being sick in a hospital and usually the last third to be paid. It is not the doctor's charge that accounts for the high cost of being sick, and at present he receives only one-third of the cost. His services are easily worth two-thirds of the cost of being sick. Certainly he is worth as much to a patient as a nurse. If nursing and hospital charges continue to mount, the physician must eventually find some other type of service to meet his patient's needs. This is a grave problem that must be handled by the physician of tomorrow. He should not be further limited by law to regulate his already too meager compensation for the value of the services he performs cannot be eclipsed. The medical profession welcomes aid in a fair solution of this problem but reasonably resents the indictment that we are overpaid."

#### PHYSICIAN SUMMONED FROM HIS HOME ON A PRETEXT OF MERCY AND MURDERED

"Toujours pret et toujours fidele!"

"Always ready, always faithful!"

Unflinching devotion to this inexorable motto of all ethical physicians caused a few months since the brutal murder by a band of hoodlums of a respected and valuable member of the medical profession, and a sterling citizen.

It was responsible, too, for the "stick-up" of several other doctors.

With one of the most rapacious, brutal and

degenerate "gangs" that has ever come to the attention of the Chicago police, and the average age of which was insufficient to permit them to cast a ballot, *the most popular victims were members of the medical profession.*

"Doctors are a cinch," the ringleader told the police who listened appalled and horrified to the revelations of the gang. "Yea—doctors always come when they are called and they never mind where they are told to go. Easy to get them to go to the sticks and way out in funny places. We could do 'em up good there."

Yes, doctors always come when they are called. No, doctors never object to going to out of the way places. They are a trusting credulous crew, with hands ever eager to aid, ears ever open to hear, and feet ever waiting to rush to the help of humanity. Doctors are never "choosy." Doctors are always on the job. Doctors, so those young punks found, and as millions of ailing humanity has discovered hear and heed a summons without captious cavilling as to source or objective. Where there is need *there* is found the capable conscientious physician.

What a travesty of reward fell to the lot of the victimized and murdered Dr. Silber C. Peacock!

Summoned from his home and fireside, with his wife, his baby daughter, and the imminency of another expected child, he answered as earnest medical men have always done and always will do, the call for help to a "sick child." Next afternoon his murdered body was found in an isolated neighborhood. In the vicinity of where the call had come, nothing like a sick child or the address had ever been heard of.

Was this servant of humanity rewarded by the faith of his fellowmen?

#### HE WAS NOT.

With the exception of the medical profession, his colleagues in the crusade of mercy, this doctor was by intimation accused of practically every unseemly action in the calendar from malpractice and mayhem to illicit intrigue and actual dishonesty.

Theory after theory was advanced by press and public. The heartbroken family and friends were spared neither inquiry nor insult. The worst possible construction was put upon the most innocent action by every possible medium or means.

Dr. Peacock's confreres alone stood staunch



and true. The North Shore Branch of Chicago Medical Society offered a reward for the apprehension of the murderer *and not for an instant did their faith waver.*

Trapping of the misguided young criminals responsible for the slaying of a man who had saved many lives, alleviated much suffering and was still, according to the years of his profession, a very young man, came through police activity in the way of yet another misdemeanor. Disappearance of two young girls, known to have associated with the youths, brought the "gang" into the police station. At a subsequent show up of criminals, several doctor robbery victims identified the gang. An inspired police officer remarked casually, "What about the Peacock murder," and saw one of the youths blanch and quiver for an instant. To clever officers, as were those in charge of that inquiry, the rest was easy. The truth came out.

"Tonjours pret! Tonjours fidele." (Always ready, always faithful!) The motto stands for the faithful, loyal confreres of the murdered physician as well as for that strict adherence to creed that sent Dr. Peacock to his death, because, "Gee, doctors are easy. They always come when they are called."

### NOW IS THE TIME WHEN PHYSICIAN'S COUNSEL IS NEEDED IN LEGISLATIVE BODIES AS NEVER BEFORE

One of the most pertinent and able bits of medical literature scanned in many a day is that written by the senator from New York, Dr. Royal S. Copeland, and published in a recent issue of "*Medical Economics*."

Quoting from Dr. Copeland a few interesting excerpts are:

"Are the vast social and economic problems which the country faces today those which can be met best by the average politician or legislator?"

"My answer is, No! In the face of the present dilemma, one doctor in politics is worth as much to the country as a dozen lawyers!"

"We physicians must render more public service than in the past. We must use our knowledge more and more against those all-too-prevalent methods of living which make for unhealthful conditions.

"This is a time when every physician must be a preacher, spreading the gospel of how to live properly under adverse circumstances. This is a time, too, when his counsel is needed by legislative bodies as never before.

"Back in what we may call the 'normal' days, quacks, charlatans and dishonest advertisers of 'cures' were, of course, with us. We still have them. However, they now constitute a much larger menace to honest medicine and the public welfare.

"When people are despondent they are inclined to grasp at any straw of encouragement. This means that they are all the more ready to listen to and patronize the unethical, not to say openly fraudulent, species of practitioner.

"Granted that it is the task of the ethical physician to keep medicine honest, one of the best possible ways for the profession to guard against the continued inroads of the charlatan is for its members to enter into politics—if for no other reason than to keep these fellows out, and thus prevent their lowering the existing legal bars which to some extent at least keep them under control.

"If able physicians would be willing to sacrifice their private practices, even temporarily, and serve in legislative bodies, I am confident that their very presence there would be a guarantee not only of a better deal for the medical profession, but for the public at large.

"And now let us turn to a matter on which I am questioned by medical men everywhere I go. What is the future of the medical profession in this country? One of the administrators of public relief in the State of New York has told me recently that in this wealthiest state in the Union there are 500,000 families on the dole.

"This means 2,000,000 citizens of New York State are dependent on relief funds for house rent, fuel, food, clothes and medical attendance. . . . Heretofore the highest average (number of unemployed in the United States has been 2,500,000, but we have had now as high as 15,000,000 persons out of work. . . . Experts tell me that there are still 10,000,000 unemployed persons in this country.

"Appearing before the Senate Appropriations Committee, of which I am a member, Harry Hopkins, director of the Federal Emergency Relief Administration, declared not long ago that

Congress must evolve some plan for *permanent* relief of at least 10,000,000 of our people. This is truly a deplorable situation, one that should engage the sober thought of every physician.

"My mail has been filled with letters from doctors. Because I happen to be a medical man, they apparently prefer to write to me, rather than to their own senators. In this way I get at first hand many a recital of their particular woes and tribulations.

"One physician informed me the other day that he had not received one dollar in cash for the past six weeks; that he had been taking his pay in farm products, eggs, chickens, butter, sides pork, and so on. With a large family of his own to care for, this doctor, typical of large numbers, is faced by the imminent peril of economic and social disaster.

"Hundreds of doctors, in fact, would be in bread lines themselves except that they are administering to the vast army of the unemployed through federal relief agencies."

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### THE 1936 ANNUAL MEETING

The preliminary program for the 1936 annual meeting of the Illinois State Medical Society appears in this number of the *ILLINOIS MEDICAL JOURNAL*. The meeting will be held in Springfield on May 19, 20, 21. All sessions will be held in the spacious Knights of Columbus Club Building, and all exhibits will likewise be displayed in the same building.

The Committee on Arrangements selected from the membership of the Sangamon County Medical Society, has been working for months to get the best possible arrangements for a successful meeting. The Sangamon County Society has had much experience in arranging annual meetings for more meetings of this Society have been held in Springfield than elsewhere.

The officers of the five scientific sections, and also those for all special meetings in connection with the annual meeting have carefully prepared their respective programs so that they will appeal to the entire membership.

On Tuesday morning, May 19, the special meeting of the Pediatricians, Obstetricians and Gynecologists, the Woman Physicians, and the annual Secretaries' Conference will be held in the Knights of Columbus Building.

The general opening meeting will begin promptly at 1:00 P. M. Tuesday, and at 1:30 the annual Oration in Medicine will be delivered. The remainder of the afternoon will be devoted to individual meetings of all sections.

On Wednesday and Thursday mornings, there will be a joint session of the sections with programs arranged which will appeal to the members of each of them. These joint sessions have been carefully arranged and the speakers and subjects have been well selected.

The first meeting of the House of Delegates will be held at 3:00 P. M. Tuesday, and at 8:30 A. M. Thursday, the second meeting of the House will be held. All annual reports, and many matters of interest to the delegates and component societies will be brought up for their consideration.

The annual President's Dinner will be held at the Abraham Lincoln Hotel on Wednesday evening, and the committees in charge of this interesting function are planning for a big attendance and they give every assurance that it will be an appropriate tribute to a most capable executive.

The Committee on Scientific Exhibits has procured the largest display in the history of the Society, and these exhibits will be of much interest to the entire membership. A variety of subjects has been selected for these exhibits this year, many of them being prepared primarily for the 1936 annual meeting.

The usual number of technical exhibitors will be on hand to show the physicians of Illinois many of the newer developments of the year in various forms of therapy.

The official program will be published in the May *ILLINOIS MEDICAL JOURNAL* together with a considerable amount of informative data pertaining to the meeting.

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### SPRINGFIELD

Springfield, Illinois, "the home of Abraham Lincoln", the capital of Illinois, is to be the meeting place of the eighty-sixth annual convention of the Illinois State Medical Society. Springfield has many advantages for such a meeting and a large attendance is expected. The former home of Abraham Lincoln is rich in the history of a critical period in the affairs of the United States and many shrines dedicated to



Lincoln have been preserved for tourist inspection.

Lincoln moved to Springfield about 1837 from New Salem and became the law partner of J. P. Stewart, maintaining the closest possible personal, professional, and political connection with the city until the time of his assassination at the close of the Civil War. The only home that he ever owned is open for inspection at Eighth and Jackson Streets. In Oak Ridge Cemetery is a splendid monument recently remodeled and reconstructed which houses an impressive museum of Lincoln relics and Lincoln history. The lower part of this monument constitutes the mausoleum containing the remains of the Great Emancipator and members of his family.

Although Springfield is particularly noted for its wealth of Lincolniana and his associations will forever color the future progress of the city, there are many other features of decided interest to visitors. The State Capitol, completed in 1887 at the cost of four million dollars, is the most prominent building of a well-planned state group. It is constructed of gray limestone and granite in a classic type of architecture and is surmounted by a massive dome 361 feet high. Contained in the state group of buildings is the Centennial Building begun in 1918 to commemorate the one hundredth anniversary of Illinois' birth as a state. It houses the administrative offices, the famed hall of flags, an efficient museum, and the collection of the State Historical Library and the State library system. Also in this group is the Illinois Supreme Court Building, and it is on an adjacent site that the new Armory and Archives Building will be erected. Other places of interest are the Federal Building, County Court House, City Hall, K. C. Building, Elks Home and the Lincoln Library.

Of particular interest from many points of view is the recently completed Lake Springfield. This is an artificially constructed lake some eighteen miles in length with a storage capacity of over twenty-one billion gallons of water. With the cooperation of the different committees it is hoped that much of the social activity of the annual meeting will focus about Lake Springfield.

The city has two large hospitals, St. John's and Springfield, and homes for the aged and for children. It has 650 acres of parks, boulevards and playgrounds, providing ample facilities for

tennis, swimming, baseball, golf, and other sports. Springfield has necessarily become a focal point in the concrete road system of Illinois, a factor which should encourage a large attendance. In addition, its multiplicity of railway lines and electric lines make it peculiarly accessible from some distances.

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#### VITAMIN "E" IN SPONTANEOUS ABORTIONS AND INVOLUNTARY STERILITY

Dr. E. M. Watson, London, Ontario, in the *Canadian Medical Association Journal*, February, 1936, page 134 is abstracted in the *J. A.M.A.* March 28, 1936, as follows:

Clinical Experiences with Wheat Germ Oil (Vitamin E).—Watson prescribed wheat germ oil to sixty-five patients respecting whom spontaneous abortions, threatened abortions or involuntary sterility constituted the principal abnormalities. The patients have been classified into four groups: group 1, pregnant women who had experienced two or more spontaneous abortions previous to receiving wheat germ oil treatment (habitual abortion); group 2, pregnant women who had experienced one spontaneous abortion previous to receiving wheat germ oil treatment; group 3, cases of threatened abortion, and group 4, women who sought medical advice because of failure to become pregnant (sterility group). The patients included in groups 1 and 2, with but two exceptions, were pregnant at the time the treatment with wheat germ oil was started. The purpose of the treatment was to favor the continuation of the pregnancies. The patients in group 3 received the oil only after the onset of the symptoms of threatened abortion, and its administration was a part of the treatment for that condition. Those in group 4 were not pregnant at the time the oil was used, although several had been pregnant previously. The object of the treatment in these cases was to facilitate impregnation. In the majority of the abortion and sterility cases no therapeutic measures except the use of wheat germ oil were instituted. But the patients with signs of threatened abortion were subjected to the usual management for that condition and received wheat germ oil. Of eleven patients who had sustained from three to fifteen spontaneous abortions prior to the exhibition of wheat germ oil, nine went to term and were delivered of healthy

living children. Six of the patients under this regimen completed a pregnancy for the first time. Of the seventeen wheat germ oil treated patients, each of whom had had two spontaneous abortions, twelve gave birth to healthy living children after the use of the oil. In five cases the pregnancies were interrupted by spontaneously occurring abortions. Of nine treated patients, each of whom had experienced one previous spontaneous abortion, eight gave birth to healthy, living children. In the ninth one abortion took place a short time after the use of the oil was commenced. Fifteen patients were treated for the symptoms of threatened abortion, the majority after bleeding had begun. In eleven of these the pregnancies continued uninterruptedly to terminate in natural deliveries, but in four instances the abortions became inevitable. Thirteen non-pregnant women were given wheat germ oil with a view to facilitating impregnation. Six of these had never conceived and therefore constituted examples of primary sterility. Each of the remainder had been pregnant at least once, which placed them in the category of so-called secondary sterility. Seven had had one or more abortions, but only one woman had given birth to a living child. Pregnancy did not ensue in any of the patients in this group. Conception occurred in two of Vogt-Möller's four sterility cases and living babies were delivered. The experiments lend some support to the surmise that vitamin E is a factor in the advancement of pregnancy to a natural termination.

#### DOCTOR WILLIAM H. MALEY CANDIDATE FOR CONGRESS

Dr. William H. Maley, Galesburg, Illinois, is a candidate for Congress on the Democratic ticket in the fifteenth district.

Dr. Maley was a charter member of the Knox County Medical Society and has been an active member ever since. For eight years he represented the Knox County Medical Society as delegate to the Illinois State Medical Society.

He is a graduate of Knox College and Brown's Business College of Galesburg, and the Medical Department of the University of Chicago, known as Rush Medical. He did post graduate work in Berlin and Vienna.

He was one of the first medical men to enlist in the World War. He entered as a first lieu-

tenant and served his country for over two years. He was promoted to rank of major and was chief of the surgical service for a base hospital in France.

He has always taken an active part in public affairs and has held many positions of trust and responsibility. At present he is member of the Galesburg City Council and has served as councilman for over twenty years.

He is an active member of the American Legion, the Veterans of Foreign Wars and the 40 and 8. He is an active member of the Knox County Medical Society, the Mississippi Valley Medical Society, the Illinois State Medical Society, and the American Medical Association.

He is at present organizer for the National Union for Social Justice—District fifteen. In medical matters Dr. Maley has been one of the staunchest advocates of organized medicine.

#### BLADDER ABNORMALITIES DUE TO INJURY OF MOTOR PATHWAYS IN NERVOUS SYSTEM

By means of an air-water manometer and recording tambour Lloyd G. Lewis, Orthello R. Langworthy and John E. Dees, Baltimore (*Journal A. M. A.*, Dec. 28, 1935), have made graphic records of the behavior of the detrusor muscle during bladder filling. The bladder muscle characteristically responds to stretch stimuli, and important information can be obtained by observing and recording waves of bladder contraction. Patients were studied who suffered either bilateral or unilateral pyramidal tract injuries or had lesions of motor tracts in the spinal cord. With release from cortical control, the stretch reflex is hyperactive. The bladder empties precipitously with a small volume of fluid. When the motor pathways from the midbrain are injured bilaterally along with the corticospinal tracts, the waves of bladder contraction are frequent but of small amplitude. They are ineffective in emptying the bladder. A study of contraction waves of the muscle during filling is of aid in forming an opinion of the efficiency of a bladder with damaged innervation.

#### OPHTHALMOSCOPIC SIGNS IN THE PRE-APOPLECTIC STAGE

Disease of the retinal vessels, not of local origin, is not an absolute criterion of disease of the cerebral vessels; it simply furnishes a presumption in favor of its existence. But, in the presence of a retinal arteriosclerosis not of local origin, we are justified in concluding that a coexisting lesion is probably present in the cerebral vessels; also that we are frequently able to diagnose ophthalmoscopically a retinovascular disease which is an important sign of cerebral arteriosclerosis, this being a direct menace to the patient's life.—Dr. M. Cohen, of New York, in *M. J. & Record*, Aug. 17, 1932.



## MEDICAL ECONOMICS

Edited by the Committee on Medical Economics

of the

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Address all letters and communications to the Chairman.

During the last meeting of the Council of the Illinois State Medical Society there was brought to the Councilors concrete evidence that the Social Security Act is no longer a theory but is actually being put into effect in Illinois as well as other states of the union. As might have been expected considerable pressure is being brought to bear on the Directors of Public Health of the various states by the authorities in Washington to dictate the nature and the extent of the work to be done in medical fields. Again, I repeat that the State of Illinois is fortunate in having as its Director, one who appreciates the problems of the medical profession, and while anxious to cooperate with his superiors, does not want to do anything which will in any way injure the medical profession either individually or collectively now or in the future. As a result he is consulting with a special committee of the Society in regard to every new program suggested before he puts the same into effect. This may have a tendency to slow up the program in this state, but surely it will help to avoid the dangers, inherent to many of the projected plans. Surely the members of the medical profession in Illinois should cooperate with him in every way possible and should rally to his support whenever he is subject to criticism as he may be for his kind consideration of the profession.

According to the best information available at this time the plans for the ending of relief under the Illinois Emergency Relief Commission on May 1 is to be carried out on schedule. Already, many counties have gone on cash relief. This in so far as it includes money for medical care will further complicate an already unsatisfactory condition. The recipients of relief during the past two years have become so accustomed to demanding medical care with the same abandon as food and the Doctors have been most gracious to furnishing the same at reduced fees. Now these same people will continue to expect medical care. With no money allotted for this particular

emergency, the prospect is that they will not have any money to pay for the same. Of course, there is in theory a County Relief Unit in each county, but the general impression seems to be that these units are poorly organized and with such limited funds, that they will be totally unable to cope with the problems which are sure to arise both before and after May first. It is up to the medical profession to be prepared for these emergencies and this preparation can only be arrived at by definite planning. No organization can take the place of the County Medical Society in estimating the local conditions and problems, so that the proper decision as to the method to be employed can be arrived at. Failure to meet the problems promptly on their appearance will result in the wrong kind of precedents being established by both the indigent and the local relief units. A definite firm stand on the part of local medical men will soon convince both of them that a reasonable solution of the problem can and must be made at the beginning of the new plan if the medical profession is to be expected to do at least its share. Lets have plenty of backbone at this time and forget petty differences of opinion.

We regret that there has been a delay in the presentation of the papers of the Northwest Regional Conference. Some of the writers of the papers do not wish to have the same printed in the Journal, but as many as are willing will have the papers published in the ILLINOIS MEDICAL JOURNAL in the next few months, together with the discussion. By this method, every member of the Illinois State Medical Society will have the opportunity to read the same. The number of requests from men from out of the state has been very great and by this method we will be able to fill their desires.

It is expected and hoped that a portion of the program at the annual meeting in Springfield in May will be allotted to some of the problems of an economic nature. At present the definite

program has not been printed and it is impossible to refer the members to the exact time of these meetings. It is to be hoped that those of you who are interested in this subject, and we hope that more and more of you are becoming so, will read over the program carefully and find out when the meetings are to be held. In the May issue of the *JOURNAL* we will attempt to call the attention of the readers to the subjects of particular interest on economic subjects.

This column takes no interest in partisan politics. However, this is a time when it is well to determine the stand of the candidates for the State Legislature on medical matters. This can be accomplished either as individuals or as representatives of the County Medical profession. If there is any time that a definite stand on such matters can be obtained from politicians it is when they are anxious to be elected. Surely, it is not beneath the dignity of the medical profession to make this effort to safeguard the interests of the medical profession in Illinois.

Dr. J. S. Templeton presents an article on "The Challenge", immediately following this one. It is most interesting and will give us all cause for reflection and thought. I hope that you will read the same. Also, the Committee on Medical Economics would appreciate hearing from the members of the Society throughout the state as to their interest in this column. Please feel free to inform any member of the Committee or your Councilor as to your feelings in regard to the same and if you have any suggestions as to improvements, let them know.

E. S. HAMILTON, M. D.,

Chairman of Committee on Medical Economics.

### THE CHALLENGE

Organized Medicine in the United States of America is accused of charging too much for service to the public and of not rendering necessary service to our citizenship. Certain foundations and citizens with socialistic ideas complain that the middle class cannot afford to pay the price of proper medical service and are not being cared for as well as the indigent and richer class. Therefore, they had a Social-Security Act passed with provision for a beginning of medical service to humanity that will be paid for by taxes, which are paid by the public. Some of these organizations have for several years been spend-

ing money for investigations by committees, composed of laymen and a few doctors who are in sympathy with the idea of State Medicine, and now we are facing the challenge to show why they should not establish clinics and other forms of State Medicine in communities they consider the most fertile for gaining their objective.

It is not citizens of the middle class that are clamoring for this change. It is not the fellow that pays the taxes. It is social service workers and those who stand high in the political world who hope to obtain gain for themselves. They pretend to see the need of revolutionizing our medical setup and practices. What are we as a profession and individuals doing about it? No doubt many thought, like myself, until recently, that it was something far away in the future. But you must realize that in the passing of the Social-Security Act, we are brought to face State Medicine now.

Will we meet the challenge with determined spirits and stout hearts, or will we go about our business expecting the Lord to take care of us and the common people? As for myself, I cannot do the latter. I was born fifth of a family of eight children, taught the common children four years in public schools, and have cared for the medical needs of the common people more than thirty years. Hence my claim to qualify as one of the common people and know their needs. These contacts and experiences tell me that State Medicine will not correct the mistakes of medical service. We do not, like our opponents, believe that our work is all perfect. We are striving day by day to improve it. Statistics, health and death records prove that we are succeeding. We should not stand by and allow our individualism or the principles of our practice of the healing art to be taken away from us.

My eyes were opened while listening to a debate on State Medicine recently. Not a man or woman was quoted favoring it that had as much experience with the medical needs of the common people as the average practicing physician. Yet they are telling us how we should do our work. They extolled the medical profession, yet impressed the audience that we are poor business men. Some of us are. What profession is not afflicted by having some of the same drones? They claim we are handicapped by having to look after our business interests,



in other words, to finance the family. They worry about the doctors who do not collect over fifteen hundred dollars a year. At the same time they rave about our regimented school system, and how successful it is. What per cent. of our teachers are paid more than fifteen hundred dollars a year? Is the teacher able to go through his day's work without financial worry?

The regimented school teacher calls twenty-five or thirty children together and gives them all the same task. Do these brain trusters think the physician could do the same thing? Supposing we should find a majority of a group of twenty-five who needed their tonsils removed and proceed to complete the work for the entire group, that would be regimented State Medicine. Our regimented school system is not what we or our children need.

Children are not all alike, yet they are given practically the same training. Individual thought and care would be much better for ninety per cent. of them. I am not finding fault, but they have brought our schools into the argument. How long has it been since seventy-five per cent. of the teachers of Illinois were wailing about poor, unpaid salaries. Many of our teachers are with us, but one I recall having heard talking for State Medicine. He was squawking about having to pay fifty dollars for removal of his child's tonsils and at the same time was drawing three thousand dollars per year. Our schools stand well as compared to those of other countries, so let them alone, and fight to keep them from getting further into the dirty mire of politics.

In these debates there is not a single municipality or government quoted as having made a success of State Medicine. They would plunge us into unknown seas to sink or swim. Did the government make a success of directing our railroads? No. They have charge of our gasoline from the time pipes are put into the ground. Do you know that we are paying forty-five cents tax every time we buy a dollars' worth of gas? Yet we do not get perfect gas. Only recently one of our physicians attempted to care for a maternity case ten miles from town with the thermometer hovering around zero. Eight miles out his gas line was blocked by water in his gas, and his patient went through her ordeal without a physician, because of imperfect government controlled gas. If the government cannot give

us good gas, can it give us good medical service? Here is another example of government care and control.

A child was brought into our town three hours after eating forty or more cold tablets, enough acetanilid to kill five children of its size. Its stomach was washed with but little results. One ounce of castor oil was given, and an enema an hour later caused the child to pass the pills, some of them still retaining their red coating. Four hours in the child's stomach and bowels, but so indigestible that the child had not absorbed enough to do it more than slight harm. Imagine the public paying their good money for pills so hard to digest they could do no good. Remember patent and proprietary medicine are made and sold under the direction of the government.

Instances are without number where even our government, the best and greatest in the world, has failed to give service equal to that of the individual.

When speaking of government control, I have reference to federal control rather than state. When speaking of state control, I have no reference to state rights, but rather to individual rights. There is no question but that the farther you make the center of control from the recipient you increase the disadvantages of the individual service.

We have in the state of Illinois, and in all others, as far as I know, a State Department of Public Health, which does not control the practice of medicine but has charge of and the responsibility for preventive medicine. When speaking of this Department, I do so, knowing that we are not unanimous in our opinions of the duties of our Department of Health. However, our profession has worked with the Department of Health in the state of Illinois for many years. Regardless of our differences of opinion, we have had wonderful results, and the profession has done itself great credit bringing about results with the assistance of our Health Department. I am not inclined to quote a lot of figures. A few are all that is necessary to convince any fair minded person that the prevention of disease has not been neglected, as charged to us. In Illinois in 1913, a little more than twenty years ago, scarlet fever, diphtheria, measles, whooping cough, typhoid, and smallpox were responsible in the one year for 4,148 deaths.

The same year, 1913, there were 418 deaths attributed to homicide. Twenty years later, during the year 1933, the same contagious diseases, plus poliomyelitis, caused the death of but only 688 persons, while murder or homicide caused 836, just twice as many as in the year 1913. These figures are conclusive evidence that the Department of Public Health and the medical profession have worked hand in hand these twenty years. Time forbids my referring to many other accomplishments of the joint service rendered the people of Illinois. Our directors of Public Health for several years past have been able, conscientious, men working in full accord with the aims, objectives and goal of the medical profession. It is our duty as medical men to support in every possible way our Department of Public Health in their effort to stamp out all preventable diseases. Diphtheria, smallpox, and typhoid fever will soon be in the ancient history class, and they are disappearing much faster than they could be made to do under government political control of medicine.

The Social-Security Act recently passed provides taxation for the care of maternity cases and crippled children. As for maternity work the medical profession has been giving special attention to it for the last fifteen years. We can stand help, of course, but are not asking for financial aid from the federal government, and above all do not want any federal dictators telling us how, when and where to do things we know much more about than they do. Possibly in times past we failed to give the mother and new-born baby the attention they deserved. However, our record of improvement is better than in any country under federal control of these important matters. As for crippled children we have thousands of men and women taking an active interest in their welfare and giving every possible relief for this class of unfortunates. Women's Clubs, Rotary Clubs, Lions, Kiwanis Clubs, and Masonic, Elks, Odd Fellows and many other organizations as well as the many millions of church members who are acting because of a personal interest in the unfortunate. Not only are the crippled benefited, but a Christian, charitable spirit is engendered in all who have a part in this great work. Could the state possibly do any better by our unfortunates, give them any better care, or show them any more attention or kindness than they are

receiving today? The training of our citizenship in the spirit of philanthropy and human kindness is a vital necessity to the enduring worth of our nation. Shall this important matter be turned over to hireling who will naturally look upon this task with the view to extract the filthy lucre from funds intended for the afflicted rather than the alleviation of suffering?

We have had enough experience with government controlled medicine since we began working with medical relief. In the first place, while the federal government has had control there has been a great difference of regulation in various states. Kansas, for instance, allowed one dollar per month for each family, while in Illinois we were given but half as much. Sufficient money is not allocated for a month. Usually it lasts less than half, so we physicians having worked the first part of the month for half pay were compelled for humanities' sake to care for the sick the last half or more for nothing. That to us seems to be a fair test of what government controlled medicine would be. We are promised more income under State Medicine, and the common people are promised cheaper service. How can that be done when the tax collector will have to be paid, the case worker paid, and the secretary or director be paid? Imagine dragging the sick to medical centers with a sub-zero temperature prevailing. Imagine the expense of hunting up the sick and afflicted and compelling them to come into such a center for treatment. Besides all the inconsistencies mentioned, the sick would be robbed of their inalienable right to choose their own physician. Regardless of how much one physician might know about a patient's constitutional peculiarities, he would not always be allowed to treat the case, and what would be the result when it would often occur that physicians would be changed every day?

Medicine, like many other things, requires individual thought, individual contact and individual responsibility to reach its highest and greatest degree of efficiency.

To you, men of the profession, I appeal. You know that regimentation in medicine will not benefit the service. You know that government control will add confusion to our already difficult medical problems. The common people, the advocates of government control worry about, will pay more and receive less. Preventive



medicine will be retarded in its usefulness. There will be less incentive to delve into the mysteries of scientific medicine. This exploitation of idealistic fancy is a step of retrogression rather than one of progress. The vast difference between idealism and the practical application of its tenets is apparent on all sides. We may be approaching the millennium of perfection in all lines of professional life, but prophets of the new order are confronted daily with errors in calculating our nearness to the goal.

The mirage of delusion has made itself a reality in too many experiments, industrially, socially, and morally. These are days for serious thinking and careful weighing of the new versus the old. "Be not the first by whom the new is tried, nor yet the last to lay the old aside", has been a maxim adhered to by the medical practitioner many years.

J. S. TEMPLETON,  
Councilor Tenth District.

#### DR. W. D. CHAPMAN

WHEREAS, One who was deeply beloved by us all has gone from our midst, never to return, therefore be it

*Resolved*, That while we deeply deplore the death of our friend and husband of our dear President, Dr. W. D. Chapman, we rejoice in the fact that we were privileged to enjoy the boon of a friendship, the memory of which shall abide with us always.

*Resolved*, That to his family we tender our sympathy in their grief and loneliness, and the assurance of our appreciation of what his loss means to all who knew him.

*Resolved*, That as members of the Board of the Woman's Auxiliary to the Illinois State Medical Society, we transmit a copy of these resolutions to his family with the expression of our deepest and most sincere sympathy, and that these resolutions be inscribed upon the records of this meeting.

Mrs. Nelson Percy—2nd Vice Pres.

Mrs. I. F. Foulon—Rec. Sec.

Mrs. F. P. Hammond—Pres. Elect.

Eva Packard.

Mrs. Lucius Cole.

Mrs. A. H. Brumback.

Mrs. Carl A. Hedberg.

Mrs. J. P. Simonds.

Mrs. H. B. Henkel.

Mrs. E. G. Beatty.

Mrs. M. L. Hole.

Mrs. D. H. McCarthy.

Mrs. J. E. Reisch.

Mrs. E. R. Steen.

Katharine S. Bartling.

Mrs. H. M. Camp.

Helen Raim, Treasurer.

Maude A. Wolfert.

Mrs. P. R. Blodgett.

Mrs. Imas Rice.

Mrs. E. S. Allen.

#### EDUCATIONAL COMMITTEE REPORTS

##### *Progress in March*

#### SPEAKERS BUREAU:

82—Doctors were scheduled to present health educational talks before lay meetings.

Series of talks were given in a number of Y. M. C. A.s.

Health talks were given before high school assemblies, some of the audiences numbering 1,600 students.

Two programs were arranged for meetings of County Federation of Women's Clubs.

#### SCIENTIFIC SERVICE APPOINTMENTS:

10—Programs were arranged for county medical societies. The following counties made use of the service:

Scott County, Iowa—Dr. H. L. Kretschmer.

Logan County—Dr. C. C. Maher.

Will-Grundy County—Dr. Edward L. Compere.

St. Clair County—Dr. Clayton J. Lundy.

St. Clair County—Dr. Robert S. Berghoff.

Will-Grundy County—Dr. Ernst Pribram.

Union County—Dr. Edward J. Steiglitz.

Paris Hospital—Dr. Hugo R. Rony.

Will-Grundy County—Dr. Max Cutler.

Fulton County—Dr. E. J. Berkheiser.

#### RADIO:

26—Radio talks were given over Chicago stations by members of the Chicago Medical Society, and copies of talks were furnished to down-state county societies making use of their local broadcasting facilities.

Hundreds of press articles were released covering activities of county medical societies, the Hobby Show of the Chicago Medical Society, the Annual Meeting of the Illinois State Medical Society, and the usual health columns furnished many Illinois newspapers.

A complete set of material on State Medicine was sent to more than 125 public libraries outside of Chicago.

Contacts were made with the Boy Scouts of America, Chicago Branch; the Child Welfare Committee of the American Legion Auxiliary in Illinois; the Program Service of the Illinois Congress of Parents and Teachers; the Illinois High School Speech League; the First District of the Illinois State Nurses' Association.

Respectfully submitted,

JEAN McARTHUR, *Secretary*.

## IN MEMORIAM

Mrs. Mildred Aschauer (Mrs. A. G.)

On March 19, 1936, an all-wise Providence called to her last reward our dear friend and co-worker, Mildred Aschauer.

Mrs. Aschauer was a prominent civic worker, who held membership in a number of Catholic Societies and the Delta Gamma Delta Sorority. At the time of her death, she was the President of the Woman's Auxiliary to the Sangamon County Medical Society, and the State Program Chairman of the Woman's Auxiliary to the Illinois State Medical Society.

A truly sincere character, an indefatigable worker, loyal and truly devoted to her friends and to her Auxiliary. Her untimely passing will leave a void hard to fill.

We who knew her will miss her genial manner, her ever-willing efforts and her lovable personality. Hers was a life of fine purposes and ideals, which will long be an inspiration to those within the charmed circle of her friends.

HELEN B. HENKEL  
HELEN H. COLE  
M. CONNIE HAMMOND  
EVA PACKARD.

The above tribute was read at the Board meeting of the Woman's Auxiliary, Illinois State Medical Society on March 28th.

## COMMITTEE FOR THE STUDY OF SUICIDE

An organization to be known as the Committee for the Study of Suicide, Inc. was incorporated last December under the laws of the State of New York and began its activities early in January. The Committee may in time increase its present membership of ten to a total number of twenty. The Board of Directors and the officers of the new corporation are:

Dr. Gerald R. Jameison, *President*  
Mr. Marshall Field, *Vice-President*  
Dr. Henry Alsop Riley, *Treasurer*  
Dr. Gregory Zilboorg, *Secretary and Director of Research*

Miss Elisabeth G. Brockett  
Dr. Franklin G. Ebaugh  
Dr. Herman Nunberg  
Dr. Dudley D. Shoenfeld  
Dr. Bettina Warburg.

The Committee plans to undertake a comprehensive study of suicide as a social and psychological phenomenon. To achieve this the following general outline was adopted:

1. *Intramural studies* of individuals inclined to suicide in selected hospitals for mental diseases. These will embrace constitutional, neurological, psychiatric and psychoanalytic investigations of the phenomenon with special reference to therapy and prevention. This part of the study will include the investigation of suicidal trends or ideas of death emerging in organic deliria.

2. *Extramural studies* of ambulatory cases afflicted with suicidal trends or with obsessional wishes for their own death. These studies will be primarily therapeutic in nature, the cases to be treated in especially selected outpatient clinics and by qualified psychiatrists and

psychoanalysts. Regular "control seminars" to follow and to supervise the course of the cases under treatment will be held under the guidance of the Committee. The medical and neurological status of all cases will be a prerequisite of each case record.

3. *Social studies* of suicide will be undertaken along the following general lines. Various attempts at suicide will be followed up by experienced psychiatric social workers; all cases will be studied from the standpoint of social background and history and those who failed in their attempts or have recovered from injuries following a partially successful attempt (prolonged unconsciousness or physical illness) will be urged to submit to psychiatric and psychoanalytic treatment in the hands of the intra- or extramural therapeutic agencies which will be available to the Committee.

4. *Ethnological studies*, i. e. comprehensive investigation of suicide among primitive races, will be one of the first concerns of the Committee, for suicide is a rather frequent occurrence among many primitive races still extant and when studied may throw some light on suicide as a psycho-biological phenomenon. It is planned that an expedition headed by a psychiatrically schooled anthropologist, a psychiatrist and a psychoanalyst should work for a time in a region such as the Melanesian Islands or the Gulf of Papua, and in the interior of the Mexican North West as well as among some of the North American Indian tribes. Further details of this plan will be elaborated.

5. *Historical studies* of suicide will be pursued systematically under the auspices of the Committee, so as to make available a scientific history of the phenomenon as a social and medico-psychological problem.

The Committee was organized under the guidance of its first chairman, the late Dr. Mortimer Williams Raynor, Medical Director of Bloomingdale Hospital, who died on October 5, 1935.

Dr. Henry E. Sigerist, Professor of the History of Medicine at Johns Hopkins University, and Dr. Edward Sapir, Professor of Anthropology at Yale University, are consultant members of the Committee. They will advise and guide in that part of the work which touches their respective fields.

The Executive Offices of the Committee are located at Room 1404, the Medical Arts Center, 57 West 57th Street, New York City, and will be in charge of an executive assistant.

## NEW AMBULANCE ORDINANCE

Experience gained during the World War in the immediate care of fractures of the long bones and the striking reduction in mortality following fixation before removal of the injured, as well as the growing number of accidents on highways and elsewhere, have been conducive to an increased interest in the emergency treatment of fractures of the extremities.

The dangers of hemorrhage, tissue damage from movement of the jagged bones, shock and infection, may be seriously enhanced by careless or incompetent handling at the time of the accident, or by well-meant but mistaken efforts to convey the patient to a place of shelter or comfort.



The amount of suffering, the duration of disability, and the degree of permanent incapacity, may frequently hinge upon the character of the immediate attention given to the injured part. Thus it becomes important that a knowledge of first aid should be required of all attendants in ambulances, police cars, or other conveyances intended to provide early help in cases of accident.

The major industries, as well as many public and semi-public organizations, such as the Red Cross, The Boy and Girl Scouts, various nurses' associations, and all military units, are engaged in furthering instruction in first aid work, not only among their own members but among the laity as well.

In recognition of the necessity for proper splinting before transportation, the City Council of Chicago has passed an ordinance requiring all ambulances in Chicago, public or private, or any other vehicle commonly used for the transportation of the sick or injured, to be equipped with a set of simple first aid and splint appliances and to be manned at all times, such vehicle is in use, by an attendant who has obtained from the Chicago Board of Health a certificate of fitness as an ambulance attendant. Satisfactory evidence of his qualifications to fill such position and a demonstration of his ability to render first aid and to apply splints to arm and leg fractures must be furnished by the applicant for such certificate.

Compliance with the requirements of this ordinance should materially increase the comfort and safety of the injured and reduce the economic loss resulting from prolonged convalescence or permanent crippling.

#### TRAIN SERVICE TO A. M. A. CONVENTION

The Burlington Railroad will operate special modern Pullmans from Chicago to Kansas City, Missouri, for members of the American Medical Association, their families and friends on the nights of May 10, 11, 12, 13 and 14.

The Burlington's crack train, the "*American Royal*" leaves from the Union Depot on the following schedule:

Leave Chicago via Burlington R. R. 7:00 P. M. Central Standard Time. Arrive Kansas City via Burlington R. R. 8:50 A. M. Central Standard Time.

A special 30-day rate of \$18.40 round-trip may be had by presenting identification, certificates which can be secured by applying to Dr. Olin West, Secretary, 535 N. Dearborn Street, Chicago, Illinois.

A special 30-day rate of \$18.40 round trip on the certificate plan may be had. When purchasing ticket ask for a certificate which is signed by the purchaser in the presence of the clerk at the railroad office. This certificate must be countersigned at the registration office of the A. M. A. at Kansas City.

A lower birth is \$3.00 and the upper \$2.40. For reservations please write or phone your local railway depot or if in Chicago make your reservations through Mr. S. J. Owens, G. A. P. D., Burlington Railroad, 179 W. Jackson Blvd., Chicago, Illinois. Phone: Wash 2345.

#### AMERICAN NEISSERIAN MEDICAL SOCIETY

The American Neisserian Medical Society will hold its second annual meeting on May 18, 1936, in the Hotel Statler, Boston, Massachusetts. All who are interested are cordially invited.

#### UNITED STATES CIVIL SERVICE EXAMINATIONS

Clinical Director (Female), \$5,600 a year

Director of Laboratories, \$5,600 a year

Associate Psychotherapist (Female), \$3,200 a year

Saint Elizabeth's Hospital, Washington, D. C.

Applications must be on file with the United States Civil Service Commission at Washington, D. C., not later than April 20, 1936.

The United States Civil Service Commission announces open competitive examinations for the positions named above. Vacancies in these positions and in positions requiring similar qualifications will be filled from these examinations, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion. The salaries named above are subject to a deduction of  $3\frac{1}{2}$  per cent toward a retirement annuity, and for the position of Clinical Director (Female) there is a further deduction of \$200 for quarters.

**DUTIES.**—*Clinical Director (Female).*—As general administrator of a major division of a psychiatric hospital, to direct the medical and nursing personnel in connection with the psychiatric examination, care and treatment of more than 1800 women patients.

*Director of Laboratories.*—As general administrator of the research activities in psychiatry, particularly from a laboratory standpoint, to direct the laboratory units in pathology, chemistry, bacteriology, and related groups; to conduct scientific conferences, and to participate in the various courses of instruction given to physicians and students.

*Associate Psychotherapist (Female).*—To conduct research and investigational work relative to the causes, symptomatology, and mechanisms of mental diseases; to treat individual patients by psychotherapy.

**BASIS OF RATINGS.**—Competitors will not be required to report for examination at any place, but will be rated on their education and experience on a scale of 100, such ratings being based upon competitors' sworn statements in their applications and upon corroborative evidence.

#### HOTEL ACCOMMODATIONS

The members of the Sangamon County Medical Society in Springfield and the surrounding county are to be the hosts for the 1936 annual meeting and have been working for some months to make it an important and successful gathering.

Although Springfield is well supplied with excellent hotels it is wise to make early reservations to insure hotel accommodations. This is particularly desirable because of the legislative activity and the many conventions that select Springfield as a meeting place.

Members are urged to send reservations direct to the hotels.

Abraham Lincoln Hotel .....	300 rooms
St. Nicholas Hotel .....	350 rooms
New Leland Hotel .....	150 rooms
Illinois Hotel .....	60 rooms

There are other hotels, which are smaller but comfortable.

HOMER P. MACNAMARA, M. D.,  
*Chairman, Committee on Hotels.*

#### NOTICE TO GOLF ENTHUSIASTS

Golfing medicos attending the Annual Meeting of the State Medical Society will have the exceptional opportunity of playing on the beautiful eighteen-hole Illini Country Club course and for their benefit there will be held a handicap tournament on Tuesday morning with suitable prizes and luncheon at noon.

Foursomes and twosomes from various cities will contest and the Committee will be glad to arrange a game for you if alone. Bring your clubs along to the meeting and the tournament on Tuesday morning, May 19, 1936. Any information desired will be gladly given if you write to Dr. Fred P. Cowdin, Springfield, Illinois, *Chairman, Golf Committee.*

#### WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

##### OFFICERS

President—Mrs. Wm. D. Chapman.....	Silvis
President-Elect—Mrs. F. P. Hammond.....	Chicago
First Vice President—Mrs. A. B. Middleton....	Pontiac
Second Vice President—Mrs. N. M. Percy....	Chicago
Third Vice President—Mrs. A. H. Brumback..	Chicago
Treasurer—Mrs. William Raim .....	Chicago
Corresponding Secretary..Mrs. Harold M. Camp.....	Monmouth
Recording Secretary—Mrs. I. L. Foulton.....	East St. Louis

##### COUNCILORS

Mrs. Imas Rice .....	First District
Mrs. E. E. Beatty .....	Second District
Mrs. Lucius Cole .....	Third District
Mrs. E. J. Meyer .....	Third District
Mrs. Carl Hedberg .....	Third District
Mrs. F. E. Bollaert .....	Fourth District
Mrs. J. E. Reisch .....	Fifth District
.....	Sixth District
Mrs. Thomas D. Laney .....	Seventh District
Mrs. E. S. Allen .....	Eighth District
Mrs. E. W. Burroughs .....	Ninth District
Mrs. R. F. Stanton .....	Tenth District
Mrs. E. R. Steen .....	Eleventh District

##### CHAIRMAN OF STANDING COMMITTEES

Organization .....	Mrs. A. B. Middleton
Press and Publicity .....	Mrs. P. R. Blodgett
Legislative .....	Mrs. Carl Bartling
Printing .....	Mrs. R. K. Packard
Program .....	Mrs. A. G. Aschauer
Convention .....	Mrs. David H. McCarthy
Revisions .....	Mrs. M. L. Hole
Public Relations .....	Mrs. John A. Wolfer

Credentials and Registration .....	Mrs. J. P. Simonds
Hygeia .....	Mrs. H. B. Henkel
Finance .....	Mrs. F. P. Hammond
Archives .....	Mrs. Frank L. Alford
Hostess .....	Mrs. A. H. Brumback
Chaplain .....	Mrs. J. P. Simonds

#### PROGRAM

*Monday, May 18, 1936*

1:00—Registration.

*Tuesday, May 19, 1936*

10:00—Board Meeting, Abraham Lincoln Hotel.

11:30—Conference of members with the following State Chairmen: Legislative, Hygeia, Public Relations, Organization of Committees.

12:00—Luncheon, Public Relations—Abraham Lincoln Hotel.

4:00 to 5:30—Tea at the Executive Mansion.

7:00—Bridge Dinner, St. Nicholas Hotel. Mrs. W. D. Chapman, presiding.

*Wednesday, May 20, 1936*

8:00—Board Breakfast, Abraham Lincoln Hotel.

9:30—Business Session and Memorial Service.

1:00—President's and Past President's Luncheon (Mrs. W. D. Chapman, presiding). Introduction of the incoming president, Mrs. F. P. Hammond, and of the newly elected officers of the Illinois State Board Woman's Auxiliary.

Visitors will please register for one of the following tours at 3:30 P.: M.

1. Drive over the Vachel Lindsay Nature Trail on Lake Springfield with lectures and explanations by Rev. George M. Link, Nature Lecturer and official guide.

2. A tour of state and biologic laboratories allowing one hour for each laboratory.

3. A tour of Abraham Lincoln's residence, tomb and state Historical Library.

These tours will all be taken at 3:30 P. M.

7:00—President's dinner and dance, Abraham Lincoln Hotel.

*Thursday, May 21, 1936*

9:00—Post Convention Board Meeting, Abraham Lincoln Hotel.

This program subject to change.

#### PEDIATRICIANS' MEETING

*Tuesday Morning, May 19, 1936*

##### KNIGHTS OF COLUMBUS BUILDING

9:00-12:00—

"Congenital Pylorospasm."—Orville Barbour, Peoria.

"Physical Impairments of Deaf and Blind Children."—George L. Drennan, Jacksonville.

"Discussion of Some Common More Serious Conditions of the Newborn."—Arthur Parmalee, Chicago.

"More Recent Advances in Therapeutic Procedures in Pediatrics."—Julius H. Hess, Chicago.

"Breast Feedings."—Round Table Discussion 11:00 A. M. Clifford Grulee, Chicago, Presiding.



"Statistical Review of the Situation."—Clifford Grulee, Chicago.

"Relation to Supplementary Feeding in the New-born."—Henry Poncher, Chicago.

"Public Health Point of View."—Henry Niblack, Chicago.

"From the Standpoint of Practice."—Gerald Cline, Bloomington.

#### PEDIATRICS PAPERS IN SCIENTIFIC PROGRAM

*Tuesday, May 19, 2:30 P. M.*

##### SECTION ON RADIOLOGY

Dr. John A. Bigler, Highland Park. Subject—"Interpretation of Hilus Shadows in Chest X-Rays of Children."

Discussion by D. O. N. Lindberg, Decatur, and Joseph K. Calvin, Chicago.

*Tuesday, May 19, 4:30 P. M.*

##### SECTION ON PUBLIC HEALTH AND HYGIENE

Dr. Maurice L. Blatt, Chicago. Subject—"Cross Infection—Its Prevention in a Children's Hospital."

Discussion by Archibald Hoyne, Chicago.

*Wednesday, May 20, 4:50 P. M.*

##### SECTION ON MEDICINE

Dr. Lee Frech, Decatur. Subject—"Present Status of Immunization Against Contagious Diseases."

Discussion by John R. Vonachen, Peoria.

#### OBSTETRICIANS' AND GYNECOLOGISTS' MEETING

*Tuesday Morning, May 19, 1936*

9:00—"Sarcoma of the Uterus."—Wm. T. Carlisle, Chicago.

A survey is presented on the literature of Sarcomata of the Uterus with an intimate review of the cases at St. Luke's Hospital in the past five years. A pathological classification is advanced with a lantern slide demonstration depicting the gross and histological types.

The salient features of this series have been summarized with especial reference made to the etiological considerations, the presenting symptoms, the physical and operative findings, the various operative procedures, the type of tumor, and radiation factor, and the prognosis. The outstanding conclusion deduced is the high frequency of error made not only in the pre-operative diagnosis, but in the operative diagnosis and the pathological diagnosis as well.

The difficulty in recognition of this condition is evidenced and the reasons pointed out, but the suggestion is made that, although infrequent, these sarcoma should be considered in the differential diagnosis of uterine tumors.

Discussion opened by Richard K. Collins, Aurora.

9:30—"Gyneplastic and Minor Operations Immediately Following Delivery."—O. H. Crist, Danville.

Need of repair operations following delivery. Opposition of early teaching to this procedure. Some pioneers in this work. Technique of operations. Brief summary of 71 cases.

Discussion opened by Frank F. Maple, Chicago.

10:00—"Splenomegaly in Pregnancy."—William B. Serbin, Chicago.

Enlargement of the spleen during pregnancy is rare.

Three cases are reported; two of Banti's disease and one of chronic malaria. In Banti's disease, independent of pregnancy removal of the spleen is followed by improvement or recovery and the associated cirrhosis of the liver subsides. During pregnancy, the disease seems to become progressively worse when the above treatment is instituted. Blood transfusion gives temporary relief. In both of these cases splenotomy was carried out in the first trimester of pregnancy; in one case pregnancy was terminated at the sixth month, with but little improvement; in the other the patient had a spontaneous premature labor followed within a week by thrombophlebitis. Death occurred in five weeks.

In the case of malaria, the spleen was removed in the first half of pregnancy for "mechanical" reasons. The patient made an uneventful recovery; carried to term and had a spontaneous labor and normal puerperium.

Discussion opened by Charles C. Rentfro, Chicago.

10:30—"Endometriosis."—W. A. Malcolm, Peoria.

Endometriomata are tumors arising in or near the female pelvis. They are composed of tissue resembling endometrium which is made up of glandular tissue with typical stroma and round cell infiltration. This tumor menstruates, enlarges slowly, invades tissue progressively, is curable and is not malignant, and after the menopause or castration, retrogresses and atrophies. This is the only tumor that has a definite cure by removal of the ovarian hormone.

The history and literature of endometriomata are reviewed. The various theories developed to explain the occurrence of these tumors is discussed. Their location, pathology and symptomatology are described. The treatment is outlined, emphasis being laid on the relationship between their occurrence and the menstrual life of the patient.

Discussion opened by D. D. Smith, Decatur.

11:00—"The Treatment of Antepartum Hemorrhage."—M. Edward Davis, Chicago.

Hemorrhage in pregnancy is always a serious symptom indicative of serious pathologic complications. It is one of the major causes for maternal morbidity and mortality. During the first trimester of pregnancy abortion and ectopic gestation are the most common causes for bleeding. Hemorrhage rarely occurs during the middle trimester. In the last trimester placenta praevia and abruptio placentae are the most important etiologic causes. Good results depend on an accurate diagnosis, careful preparation of the patient and individualized treatment. Broad principles of treatment can be laid down to guide this individualized treatment. These principles in use at the Chicago Lying-in Hospital have done much to improve our results in the treatment of these complications.

Discussion opened by Floyd L. Heinemeyer, Rockford.

11:30—"Postpartum Hemorrhage in Outpatient Obstetrics."—Henry Buxbaum, Chicago, and I. C. Udesky, Chicago.

This article deals with 455 cases of post-partum hemorrhage occurring in 10,651 consecutive deliveries conducted in the home by the Chicago Maternity Center.

In this analysis is shown the relative importance of such factors as parity, multiple pregnancies, operative

interference, prolonged labors, size of foetus and management of third stage of labor in relation to the incidence of post-partum hemorrhage.

The management of post-partum hemorrhage in the home is discussed.

12:00—"The Early Diagnosis of Cancer of the Cervix."

—Charles E. Galloway, Evanston.

A few slides compiled by Dr. Galloway, together with slides from Schiller will be shown. A study of Cervical Carcinoma in Evanston and material relative to tristratification of portio epithelium preceeding or associated with carcinoma will be discussed.

Discussion opened by F. R. Towner, Elgin.

#### WOMEN PHYSICIANS' MEETING

The women physicians of Illinois, all of whom are members of the Illinois State Medical Society, will hold their special meeting on Tuesday morning, May 19, 1936.

9:30—Breakfast at the Leland Hotel.

The program will be devoted to the subject of Maternity and Infant Hygiene. Dr. Carolyn MacDonald will give an address on Syphilis—a problem in prenatal care.

Dr. Bertha VanHoosen will talk on plans for Maternal Mortality Studies which are to be made by women physicians in many countries throughout the world to be presented at the International Meeting in Edinburgh in 1937.

A beautifully illustrated lecture which has been prepared by Dr. VanHoosen from the Century of Progress exhibit on Maternity Hygiene will be presented. This lecture is designed for public education and women doctors will find it suitable for their talks before Women's Clubs, Parent-Teacher Associations and all civic groups.

All women doctors are urged to attend this session to meet old friends and enjoy this special occasion as well as the regular sessions of the Illinois State Medical Society for the following three days.

Dr. Elizabeth B. Ball, President of the Medical Women of Illinois, will officiate at this meeting.

#### VETERANS' SERVICE COMMITTEE DINNER

The annual dinner of the Veterans' Service Committee will be held on Tuesday evening, May 19, 1936, at the Abraham Lincoln Hotel. Dr. F. O. Fredrickson, Chairman of the Committee, will act as toastmaster for the occasion, and all members of the Society and guests desiring to attend this interesting function, whether ex-service men or not, are welcome. An interesting program following the dinner has been arranged.

1. "The duties of the Post and District Surgeons of the Medical Commission of the American Legion"—E. Ralph May, Department Surgeon, Department of Illinois, Chester.

2. "Veterans' Legislation as It Affects the Medical Profession"—R. L. Sensenich, Member of the Legislative Committee on Veterans' Affairs, American Medical Association; President, Indiana State Medical Association, South Bend, Ind.

3. "Veterans' Medical Legislation from the Veterans' Standpoint"—J. Bernard Murphy, Commander, American Legion, Department of Illinois.

#### THE PRESIDENT'S DINNER

The annual tribute to the President of the Illinois State Medical Society will be given in the form of the President's Dinner, which will be held at the Abraham Lincoln Hotel at 7:00 P. M., Wednesday, May 20th. The immediate past president of the Society will officiate at the dinner, and all living past presidents will be special guests at the dinner.

The committee in charge of this dinner is making elaborate plans so that all members will be anxious to pay their respects to our president, who has had the interests of the Illinois State Medical Society uppermost in his thoughts during the past year.

Complete details concerning the President's Dinner will be given in the May ILLINOIS MEDICAL JOURNAL.

#### SECRETARIES' CONFERENCE

NOTE: The officers of the Conference are arranging a most attractive program which will be of interest to all officers of county medical societies, as well as the members in general, all of whom are invited to be present at the Conference.

This Conference will be held on Tuesday morning, May 19, 1936, and complete details with the official program will appear in the May ILLINOIS MEDICAL JOURNAL.

#### CORONARY ARTERY THROMBOSIS WITH PERICARDIAL EFFUSION

A. M. Master and Harry L. Jaffe, New York (*Journal A. M. A.*, April 6, 1935), cite two cases in which the evidence appears fairly conclusive that the pericardial effusion was due to an acute coronary artery occlusion. In the first case, a man, aged 60, an acute illness was present with a previous history of syphilis but no evidence of rheumatic fever or rheumatic heart disease. There was also no reason to consider the diagnosis of tuberculosis. On the other hand, the history was typical of coronary artery thrombosis in a patient with arterial hypertension. A roentgenogram and pericardial rub were proof of a pericarditis with effusion. In the second case, a woman aged 57, the question arose during her hospital stay whether or not the lung signs were those of pneumonia, and hence whether the pericarditis with effusion was a complication of the pneumonia. Pain over the chest, even in the precordial region, may be present in a patient suffering from pneumonia. Clinically, however, the patient's course was not that of pneumonia. Further proof that coronary artery disease was the basis of her trouble was observed when she returned to the hospital for re-examination. She complained of precordial pressure following the slightest physical exertion. The electrocardiogram corroborated the diagnosis, for it still showed evidence of myocardial damage. It may be thought that instead of a pericardial effusion a hemopericardium occurred. This is hard to disprove completely, as the patients survived and paracentesis was not performed during life. However, the course in hemopericardium is usually rapid and fatal.



# ILLINOIS STATE MEDICAL SOCIETY

## 86th ANNUAL MEETING

### PRELIMINARY PROGRAM

SPRINGFIELD, ILL.

May 19, 20, 21, 1936

### MEETINGS OF THE HOUSE OF DELEGATES

*Tuesday Afternoon, May 19, 1936*

Knights of Columbus Building.

- 3:00—First Meeting of the House of Delegates, called to order by the President, Charles B. Reed, for Reports of Officers, Councilors, Committees, introduction of resolutions, and for the transaction of other business which may come before the House.

*Thursday Morning, May 21, 1936*

- 8:30—Second Meeting of the House of Delegates, called to order by the President, for the election of officers, councilors, committees and delegates and alternates to the American Medical Association. Reports of Reference Committees and action on same, and for the transaction of other business that may come before the House.

### GENERAL SESSIONS

*Tuesday Afternoon, May 19, 1936*

- 1:00—Eighty-Sixth Annual Meeting officially opened by the president.  
Invocation.  
Address of Welcome—Mayor of Springfield.  
Address of Welcome—President of the Sangamon County Medical Society.  
Report of Chairman, Committee on Arrangements.  
Adjournment for Oration in Medicine.  
1:30—Oration in Medicine Speaker and Subject to be announced.

*Wednesday Morning, May 20, 1936*

- 11:00—Oration in Surgery.  
George W. Crile, Cleveland, Ohio.  
Subject to be announced.

*Wednesday Afternoon, May 20, 1936*

- 1:30—President's Address.  
Chas. B. Reed, President, Illinois State Medical Society, Chicago.

*Thursday Morning, May 21, 1936*

Induction of the President-Elect.

Immediately following the close of the last meeting of the House of Delegates, Dr. Rolland L. Green will be inducted into the office of President of the Illinois State Medical Society by the retiring President.

### SECTION PROGRAMS

#### SECTION ON MEDICINE

George Parker.....Chairman  
James G. Carr.....Secretary

*Tuesday Afternoon, May 19, 1936*

KNIGHTS OF COLUMBUS BUILDING

- 2:30—"Low Dosage Irradiation of the Pituitary and Adrenals for Treatment of Non - Nephritic Hypertension."—James H. Hutton, Chicago.

This work, now in progress more than three years, based on the theory that most cases of essential hypertension are due to functional abnormality of the pituitary and adrenals and that this abnormality can be corrected in part by irradiation of these two organs with very small doses of the x-ray. Evidence and experimental work are summarized. Technique of treatment. Results—reduction in blood pressure, relief of symptoms and certain other phenomena. Statistics—our own and those of other men. Conclusions.

Discussion opened by Hermon H. Cole, Springfield.

- 2:50—"Miners' Hand—A Vasospastic Disease of the Hands of Miners Due to Vibration."—C. H. Drenckhahn, Urbana.

This syndrome is not infrequent in miners. It consists of a numbness and a dull aching sensation in the hands. Vasospastic phenomena can be demonstrated. Arteriograms will be shown. Miners experience considerable vibration in the hands while handling their picks, and undoubtedly this is the etiologic factor. This syndrome has never before been described in miners, although a similar syndrome has been described in pneumatic hammer workers and shoe factory workers. Therapy is discussed. Because coal mining is such an important industry in Illinois this syndrome warrants description before the Medical Society.

Discussion opened by Harold Voris, Chicago.

- 3:10—"The Medical Significance of Unrecognized Perforated Peptic Ulcer."—Harry A. Singer, Chicago.

The current opinion with regard to perforated peptic ulcer is that the symptomatology and clinical course permit ready recognition in all but a very small percentage of cases. It is furthermore generally believed that in

all but approximately five per cent of perforations a diffuse and progressive suppurative peritonitis occurs and leads to death within a few days unless surgery is instituted.

The evidence adduced from recent studies indicates that a typical ruptured peptic ulcer is probably as frequent as the classic form and that the clinical course is extremely variable. Also, that a fatal outcome in unoperated cases is not by any means the invariable result, but that spontaneous closure of the perforation and prompt recovery is an everyday occurrence.

The recognition of these typical perforations is of extreme importance because it clarifies many diagnostic mysteries not only at the time of the acute symptoms but also subsequently when complications and sequelae are expected to occur. During the acute stage erroneous diagnoses are the rule. These include thoracic as well as intra-abdominal and retroperitoneal disease. Appendicitis, cholecystitis and cholelithiasis, intestinal obstruction, pancreatitis and renal affections are frequently misdiagnosed. Coronary thrombosis, pleurisy, pneumonia, and spontaneous pneumothorax are also falsely assumed to be present.

Among the complications and sequelae of perforated peptic ulcer are perigastritis simulating carcinoma, hepatic, subphrenic, perigastric or pelvic abscess, and fibrous peritonitis producing intestinal obstruction. However, without a history of previous perforation, the diagnosis of any of the above affections is difficult to establish and, if correctly diagnosed, the etiology of these maladies generally remains a mystery.

Discussion opened by J. Donald Milligan, Elgin.

3:30—"Ketosis in Epilepsy—Effects of Diacetone Alcohol on Institutional Epileptics."—Isidore Finkelman, Elgin, W. Mary Stephens, Louis B. Shapiro, and DeLester Sackett.

In order to determine whether the acetone bodies developed in the course of the ketogenic diet are the factors that inhibit epileptic convulsions, we treated eleven institutional epileptic patients with diacetone alcohol. The anticonvulsant properties of this drug were demonstrated by the experiments of Keith. Two to six drams of the drug were given daily during two periods of treatment. The first period was from forty to fifty days and the last period was fifty days. There was an intervening period of twenty-five days during which no medication was given. It was found that diacetone alcohol was not anticonvulsant in institutional epileptics. The urine in seven patients was positive for acetone and there was no correlation between the number and severity of the seizures and the acetone reaction in the urine. The blood sugar was increased in four patients and lowered in one. Diacetone alcohol was injected intravenously into six rabbits in order to ascertain the relation of this drug to blood sugar. It was found that there was a definite increase in the blood sugar level following the administration of this drug.

The reason for this discrepancy in the action of diacetone alcohol in human epilepsy in which it is not efficacious and in the thujone convulsions in rabbits where it is definitely anticonvulsant is probably due to a failure of obtaining a sufficiently high ketone blood level in human epilepsy at the time a convulsive seizure is imminent. The ketogenic diet may be more efficacious in maintaining a high ketone blood level than the administration of the ketone bodies as such. However, it is more likely that the results obtained with the ketogenic diet are due to the shifting of intracellular fluid and potassium across the cell membrane that accompanies a strongly ketogenic diet.

The rise in blood sugar caused by diacetone alcohol is due to an inhibition of insulin activity which this drug probably causes.

Discussion opened by T. T. Stone, Chicago.

3:50—"Acute Coronary Occlusion: Points on Diagnosis and Treatment."—Harry A. Richter, Wilmette.

An arbitrary division of the patients according to their predominating symptoms is an aid to diagnosis, and a careful history, supplemented by serial four-lead electrocardiograms, often makes the diagnosis clear. Three case histories illustrating the so-called "silent" group are given in abstract.

A short film of the changes noted in serial four-lead electrocardiograms will be shown, and the importance of the prolonged period of absolute bed rest stressed.

Discussion opened by James A. Walsh, Peoria.

4:10—"Pneumothorax Treatments for Outpatients."—Fred M. Meixner, Peoria.

Pneumothorax treatments are simple. Indications and contraindications. Use in cases of early or minimal tuberculosis. Supplants institutional care in selected cases. Should be available to hospital, home and office patients. Uses in bronchiectasis. Typical case reports.

Discussion opened by Alen H. Hruby, Chicago.

4:30—"Various Activities of the Beating Heart."—Emmett Keating, Chicago.

In this paper the author dwells upon a number of things which every doctor knows, knowledge that lingers in the subconscious mind of all doctors, but is given consideration by only a few.

If health is to be maintained, the rhythm of the heart must not be disturbed. If any of even the most common physical laws that have to do with the work of the heart are interfered with, heart rhythm will suffer.

Attention is called to the common occurrence of heart symptoms appearing in patients when the cause of their trouble is located somewhere other than the heart. The use of digitalis in these conditions is of no value and may do harm.

No heart study is complete without a fluoroscopic examination, pictures and an electrocardiogram. The highest value to be placed on any laboratory procedure is the extent to which it teaches the doctor the neces-



sity for a good history and a careful physical examination.

Two charts are used to illustrate some of the points discussed.

Discussion opened by Warren Pearce, Quincy.

*Wednesday Morning, May 20, 1936*

KNIGHTS OF COLUMBUS BUILDING

Joint Session with Sections on Surgery and Public Health and Hygiene.

SYMPOSIUM ON AMEBIASIS

8:30—"Contagion and Public Health Aspect of Amebiasis."—Mr. Joel I. Connolly, Chicago.

This paper will give a brief summary of the findings in the outbreak of epidemic amebic dysentery having a focus in two Chicago hotels in 1933.

The reasons for believing that contamination of water through faulty plumbing was the principal cause of the outbreak will be presented, and the specific defects and methods of correction will be given. The lessons resulting from the epidemic, which are generally applicable, will be summarized.

Illustrative material will be used if possible.

Discussion opened by Clarence W. Klassen, Springfield.

8:50—"The Clinical Aspects of Amebiasis."—Samuel E. Munson, Springfield.

1. Blood may or may not be found in the stools, depending on the acute or chronic types.
2. Discomfort and pain in lower abdomen.
3. Poor appetite.
4. Leukocytes increased.
5. Where blood is not observed in the stools, occult blood is found.
6. Slides showing types of organism and effect on the tissues.

9:10—"The Laboratory Diagnosis of Amebiasis."—Bertha Kaplan Spector, Chicago.

9:30—"The Medical Management of Amebiasis."—Arthur E. Mahle, Wilmette.

9:50—"Surgical Problems in Amebiasis."—Gatewood, Chicago.

10:10—Opening Discussion (Pathological).—R. H. Jaffe, Chicago.

10:25—Public Health Discussion.—Andrew R. Mailer, Galesburg.

10:30—Medical Discussion.—R. F. Traut, Chicago.

10:35—Closing Discussions.

*Wednesday Afternoon, May 20, 1936*

KNIGHTS OF COLUMBUS BUILDING

2:30—Chairman's Address:—"Problems Encountered in the Interpretation of Me-

chanical and Laboratory Aids to Diagnosis."—George Parker, Peoria.

2:50—"The Estimation of Liver Function in Hepatic Disease."—Edmund F. Foley, Chicago.

As a result of the extensive work directed toward the investigation of the functions of the liver, the indisputable fact stands out that this organ possesses an enormous reserve and recuperative power. This factor is so great that it prevents the appraisal of the normal functional capacity of the liver and compensates for stress and strain until failure occurs. It can be said that the functional tests employed are in reality not tests of function but of failure of function. The activities of the liver are so multiple and diverse that there is no laboratory procedure which measures them in aggregate. Singly, of the various roles of the liver, those which are most accommodative for estimation are the excretory, carbohydrate metabolic, and proteogenic. These functions are discussed in relation to the tests employed.

Clinically, at least, it is apparent that in disease of the liver all of the recognized functions are not equally impaired. Thus, in "catarrhal jaundice" the excretory function is seriously impaired, whereas the vital metabolic roles are disproportionately preserved. This lack of parallelism in the degree of functional injury is of service in the clinical survey of hepatic disorder and is discussed from a diagnostic and prognostic standpoint.

In the presence of obvious failure of the excretory function of the liver, as manifested by choloric jaundice, the employment of another excretory test (Bromsulphalein or bilirubin excretion) is patently of no practical value. A discussion of the relative worth of the individual tests is given.

Also considered is the interesting observation of the failure of storage of the effective antianemic substance, and of hemoglobin disassociation in liver disease.

Discussion opened by Harold C. Ochsner, Waukegan.

3:10—"The Recrudescence of Malaria."—Tom Kirkwood, Lawrenceville.

The mosquito which transmits malaria is found in all parts of Illinois. Many inhabitants of certain parts of this state are carriers of this disease. The introduction of one of these carriers into what is considered a non-malarial region may easily lead to an outbreak of malarial fever. Hard roads, with consequent increase in travel, and shifts in population due to economic factors, are conducive to the dissemination of carriers and the spread of the disease.

Instead of having disappeared, malaria is on the increase in Illinois, and may be a menace in any part of the state.

Discussion opened by Leroy H. Sloan, Chicago.

3:30—"Infectious Mononucleosis."—Harry J. Isaacs, Chicago.

Infectious mononucleosis is a disease characterized by fever, enlarged and cervical lymph glands, peculiar posture of the head, abdominal pain and an increased number of mononuclear cells. The disease is contagious, occurs usually during the spring and winter months, and is characterized by an absolute and relative increase in the non-granular mononuclear cells. The white count varies between 15,000 and 30,000, and of the total cells 80-90% are of the non-granular type.

The disease is of interest because it is easily confused with acute lymphatic leukemia, tuberculosis of the cervical glands, lues, Hodgkins, prolonged causes of temperature and acute abdominal conditions. It is the early use of the Heterophilic Agglutination test that absolutely and specifically clinches the diagnosis of infectious mononucleosis. The literature is reviewed with the developmental steps in the establishment of the above specific test. Three cases are reported by the author.

Résumé.

Discussion opened by Warner H. Newcomb, Jacksonville.

3:50—"Some Unusual Features of Metastatic Tumors of the Lung."—Cecil M. Jack, Decatur.

Considering the high incidence of primary carcinoma of the lung in recent years (as proved by autopsy material) the clinical diagnosis of these cases is alarmingly inadequate. There are three reasons for this: One, that the tumor is symptomless for a very long time. Second, that the symptoms that do develop are often not due directly to the primary tumor but to the indirect effect on the lung and pleural cavity. Third, that extensive metastases are so frequent that the first symptoms are often those due to metastases.

Early diagnosis is important in cancer in general, but in cancer of the lung it is of paramount importance for even the slightest improvement to be made in diagnosis. Considering the recent progress of thoracic surgery, it falls upon the clinicians to present the surgeons with operable cases.

In the reports of the few successfully operated cases, one finds that although the surgery was successful, the patient usually died of metastases within a few weeks or months.

Among the problems that present themselves in the early diagnosis of lung cancer, that of differentiating metastatic from primary tumors has not received the attention it deserves. The present discussion is limited to this problem.

Discussion opened by Harry Magee, Peoria.

4:10—"A New Electric Stethoscope and Stethograph."—Joseph K. Narat, Chicago.

Objective findings are more dependable than subjective; therefore, instruments are in use for recording temperature, blood pressure, metabolism, acuity of vision, etc. Numerous attempts have been made to record heart sounds. Most of such devices employ galvanometers, cathode oscillographs and other expensive

and complicated apparatuses. Furthermore, a dark room is necessary for developing the records.

A brief review of such devices follows.

The new apparatus constructed by me offers following advantages:

1. It is very simple to operate.
2. Its price, if placed on a commercial basis, would make it available to a general practitioner and not only to institutions.
3. It is portable.
4. It employs new principle of sound recording without a photographic camera. No developing is necessary and no dark room is required. The apparatus offers following opportunities:

1. It can be used for didactic purposes.
2. Permanent records can be made of rare cases.
3. Repeated records of the same patient allow a comparison of findings at various intervals.
4. The records allow a study of the time relations between the murmurs and normal heart sounds.
5. Murmurs not audible to a normal ear can be discovered at early stages of the disease.
6. Gallop rhythm, presystolic murmurs and various other conditions can be studied.

The apparatus is not a substitute but a supplement to the electrocardiograph. Simultaneous phonocardiographic and electrocardiographic records can be made. Headphones allow auscultation of amplified heart sounds simultaneously with recording them; at the same time the curve recorded is also visible on a screen. The new principle of recording may be employed also in the electrocardiograph, avoiding the necessity of having a camera and a dark room.

Discussion opened by E. M. Stevenson, Bloomington.

4:30—"Skin Manifestations of Drug Intoxications."—Wm. J. Morginson, Springfield.

A description of the immediate and remote objective symptoms which may be a manifestation of dermatitis medicamentosa or drug intoxications with suggestions and procedures recommended for the avoidance of these eruptions. The drugs considered are those commonly prescribed, as arsenic, quinine, barbiturates, bromides, iodides, phenolphthalein, mercury, bismuth, etc.

Discussion opened by J. M. McCuskey, Peoria.

4:50—"Present Status of Immunization against Contagious Diseases."—Lee Frech, Decatur.

Any discussion of immunization would be amiss without a review of the factors of immunity. This paper deals with the various agents advocated for creating an artificial immunity; the phases of different types of immunity; and the importance of immunity upon the happiness of the individual and the welfare of the community.

Discussion opened by John R. Vonachen, Peoria.

*Thursday Morning, May 21, 1936*

KNIGHTS OF COLUMBUS BUILDING

Joint Session with Sections on Surgery; Eye,



Ear, Nose and Throat; Public Health and Hygiene; and Radiology

# SYMPOSIUM ON VASCULAR DISEASES

8:30—"Etiology and Public Health Aspects of Vascular Disease."—C. Elliott Bell, Decatur.

This paper will first discuss the etiology of heart disease. An attempt will be made to classify diseases of the heart into etiological groups in order of their relative importance. Thereafter, certain well-defined types of heart disease will be discussed from an etiological viewpoint.

In discussing the public health aspects of heart disease, it will be noted that the proper control of infectious disease producing heart lesions is essential. Convalescence from acute illness must be of adequate duration. The need for proper education of the public in this respect will be pointed out. One of the major needs at present is a proper type of convalescent home for those recuperating from cardiac disease. Such homes should be available at a cost within reach of the patient, or, if his economic status is such that he is unable to pay, these homes should be available without cost.

8:50—"Ocular Findings in Vascular Disease."—Kathryn Chapman, Chicago.

9:10—"Vertigo as a Syndrome in Vascular Disease."—S. L. Shapiro, Chicago.

9:30—"The Diagnosis of Peripheral Vascular Disease."—George W. Scupham, Chicago.

9:50—"Cerebral Vascular Disease."—E. W. Cannady, East St. Louis.

A discussion of cerebral vascular disease must be limited and will be confined to the vasospastic phenomena, cerebral arteriosclerosis and syphilitic endarteritis. The pathology, symptomatology, diagnosis and treatment of the various conditions will be mentioned briefly.

The vasospastic phenomena are found in several clinical entities, the most prominent of which are lead encephalopathy, Raymond's disease, and hypertensive encephalopathy. The latter condition is of great clinical importance, but it is only recently that it has been receiving the attention that it deserves. It has been termed the hypertensive cerebral attack, pseudo-uremia, acute uremia, and cerebral crisis by some writers.

Hypertensive encephalopathy is characterized by the occurrence of transient cerebral phenomena in patients having marked hypertension without demonstrable renal impairment. The clinical features of twenty cases observed in the medical wards of the Barnes Hospital, St. Louis, and the Peter Bent Brigham Hospital, Boston, will be mentioned briefly. Pathological studies of five are reported.

The treatment of cerebral vascular accidents may be divided into prophylaxis, the management of the acute insult, and the subsequent attempt to hasten recovery from the hemiplegia.

10:10—"Rentgenologic Aspect of Vascular Disease."—E. R. Crowder, Evanston.

A description of a new instrument used in studying the heart and great vessels, with suggestions as to practical application in the diagnosis and treatment of cardiac and vascular disease.

10:30—"The Surgical Management of Peripheral Vascular Disease."—Leo Zimmerman, Chicago.

10:50—Opening Discussion, Medical—Ford K. Hick, Chicago.

11:00—Opening Discussion, Surgical—C. B. Ripley, Galesburg.

11:10—Opening Discussion, Eye, Ear, Nose and Throat—George H. Woodruff, Joliet.

11:20—Closing Discussions.

## SECTION ON SURGERY

John A. Wolfer.....Chairman  
C. Paul White.....Secretary

*Tuesday Afternoon, May 19, 1936*

### KNIGHTS OF COLUMBUS BUILDING

2:30—"Correlation of Clinical Treatment of Burns—With Recent Experimental Studies."—Henry N. Harkins, Chicago.

3:00—"A Method of Performing Nephrostomy and Its Value."—W. W. Holland, Beardstown.

3:30—"The Surgical Treatment of Arthritis."—Philip H. Kreuscher, Chicago.

### THE TREATMENT OF FRACTURES OF THE NECK OF THE FEMUR

4:00—"The Whitman Method."—H. E. Cooper, Peoria.

4:20—"The Steel Pin Method."—H. A. Sofield, Chicago.

4:40—"The Roger Anderson Method."—H. D. Junkin, Paris.

5:00—Opening Discussion.—Paul B. Magnuson, Chicago.

5:10—Discussion.—J. H. Oliver, Kewanee.

*Wednesday Morning, May 20, 1936*

### KNIGHTS OF COLUMBUS BUILDING

Joint Session with Sections on Medicine and Public Health and Hygiene.

### SYMPOSIUM ON AMEBIASIS

8:30—"Contagion and Public Health Aspect of Amebiasis."—Mr. Joel I. Connolly, Chicago.

This paper will give a brief summary of the findings

in the outbreak of epidemic amebic dysentery having a focus in two Chicago hotels in 1933.

The reasons for believing that contamination of water through faulty plumbing was the principal cause of the outbreak will be presented, and the specific defects and methods of correction will be given. The lessons resulting from the epidemic, which are generally applicable, will be summarized.

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10:35—Closing Discussions.

### *Wednesday Afternoon, May 20, 1936*

#### KNIGHTS OF COLUMBUS BUILDING

2:30—"Tuberculosis of the Kidney in Childhood and Early Adolescence."—H. L. Kretschmer, Chicago.

3:00—"Carcinoma of the Colon."—D. B. Freeman, Moline.

3:30—"The Injection Treatment of Hernia."—W. W. McMillan, Chicago.

4:30—"Cirrhosis of the Liver as a Surgical Problem."—Gustav Zechel, Chicago.

5:00—"The Surgery of the Gallbladder and Bile Ducts."—C. B. Puestow, Chicago.

### *Thursday Morning, May 21, 1936*

8:30—Joint Session with Sections on Medicine, Eye, Ear, Nose and Throat, Public Health and Hygiene and Radiology. See Section on Medicine for Program.

### SECTION ON EYE, EAR, NOSE AND THROAT

Watson W. Gailey .....Chairman

John A. Cavanaugh.....Secretary

*Tuesday Morning, May 19, 1936*

#### KNIGHTS OF COLUMBUS BUILDING

11:00—"Notes on Plastic Surgery of the Orbit." (Slides)—M. L. Folk, Chicago.

The most important principles of plastic surgery about the eye and orbit, the pre- and post-operative treatment and the operative technique will be discussed. Cases illustrated by lantern slides and showing cicatricial ectropion, congenital and acquired colobomata, and congenital pigmented nevi of the lids, symblepharon, entropion, exophthalmos, and restoration of shrunken eye sockets, will be presented.

Discussion opened by Frank N. Davenport, Moline; John F. Deal, Springfield; J. S. Clark, Freeport.

11:20—"Injuries to the Esophagus."—Chas. D. Sneller, Peoria.

The esophagus is the passageway taken by all foods from the mouth to the stomach. Chemical, thermal and physical injury to this tube may take place from the accidental swallowing of materials, considered as improper foods, or from unskillful instrumentation. This may lead to abrasion, laceration or perforation of the esophagus. The mucosa has remarkable resisting and healing powers, but the submucosa and deeper structures are poorly equipped to withstand the onslaught of injury and bacterial invasion. Various factors are concerned in the better understanding and treatment of injuries to this organ.

Discussion opened by Wm. A. McNichols, Dixon; Harold Watkins, Bloomington; Paul Holinger, Chicago.

11:40—"Surgical Treatment of Retinal Detachment."—S. J. Meyer, Chicago.

Discussion opened by Harry W. Woodruff, Joliet; Chas. V. Voight, Mattoon; A. L. Adams, Jacksonville.

### *Tuesday Afternoon, May 19, 1936*

#### ST. JOHN'S HOSPITAL

2:30—Conference Groups.

#### Ear:

Simple Mastoid Operation.—Elison L. Ross, Northwestern University.  
Complications of Otitis Media.—Howard C. Ballenger, Northwestern University.

#### Nose:

D. B. Hayden and Associates. Rush Medical College.

#### Pharynx and Larynx:

Morphology.



Applied surgical anatomy—problems in diagnosis and treatment. (Slides and specimens).—Francis L. Lederer, L. Z. Fishman, Paul Holinger and N. D. Fabricant, Illinois University.

#### Eye:

Diagnosis and Treatment of Trachoma.—Hallard Beard, University of Illinois.

Classification of Concomitant Squint with Reference to Treatment.—Geo. Guibor, Northwestern University.

Retinal Detachment as a Surgical Condition.—Sanford Gifford, Northwestern University.

Skiascopy with Cylinders.—Safety Measures Intra-ocular Surgery.—Wm. F. Moneriet, Rush Medical College.

### *Wednesday Morning, May 20, 1936*

#### KNIGHTS OF COLUMBUS BUILDING

9:00—"Use of Obturator in Treatment of Chronic Antrum Infections."—G. C. Otrich, Belleville.

Discussions opened by O. E. Van Alyea, Chicago; Jesse H. Roth, Kankakee; H. P. Bagley, Galesburg.

9:30—"Treatment of Ophthalmia Neonatorum."—J. Bellows, Chicago.

Discussion opened by Harry O. Williams, Centralia; Wm. R. Fringer, Rockford; Jos. F. Duane, Peoria.

10:00—"Practical Points in Hearing Tests and Selection of Hearing Aids."—Robt. Sonnenschein, Chicago.

Discussions opened by H. L. Ford, Champaign; Wm. H. Elmer, Rockford; J. J. Theobald, Oak Park.

10:30—"Treatment of Trachoma in Southern Illinois."—A. F. Lenzen, Peru.

One thousand cases of trachoma were treated. Two main methods of treatment were used and compared. Other methods of treatment will be considered. Five hundred operations were performed. Surgical procedures will be described, and prophylaxis will be considered.

Discussions opened by E. E. Woodside, Marion; Eli Selinger, Chicago; Dwight C. Orcutt, Chicago.

### *Wednesday Afternoon, May 20, 1936*

#### KNIGHTS OF COLUMBUS BUILDING

2:30—"Allergy of the Eye, Ear, Nose and Throat."—Leon Unger, Chicago.

Allergy may strike almost any part of the body. It has special predilection for the nose any eyes; ears are occasionally involved. Discussion of allergic conjunctivitis, rhinitis, hay fever, Meniere's syndrome, angio-neurotic edema. Treatment, specific and non-specific.

Discussions opened by G. S. Duntley, Macomb; A. R. Hollender, Chicago; Lawrence J. Hughes, Elgin.

3:00—"Middle Ear Infections."—C. H. Christoph, Chicago.

Discussions opened by Walter Stevenson, Quincy; Harry C. Hill, Streator; Samuel Saling, Chicago.

3:30—"Physiotherapy as Applied to the Eye, Ear, Nose and Throat."—J. S. Coulter, Chicago.

Discussions opened by A. B. Middleton, Pontiac; Maurice H. Cottle, Chicago; Louis L. Steiner, Danville.

4:00—"Practical Consideration of Petrositis with Report of Two Cases."—Jos. C. Beck, and M. R. Guttman, Chicago.

This paper will deal with a brief résumé on the subject of Petrositis and a report of two cases operated upon, illustrating various details in the clinical course, pathology and operative procedures.

Discussions opened by C. E. McClellan, Decatur; Wm. E. Hagens, Chicago; Stuart Broadwell, Springfield.

4:30—"A Comparison of Scopolamine and Atropin Cycloplegia."—Louis Bothman, Chicago.

Discussions opened by R. H. Woods, LaSalle; F. W. Broderick, Sterling; E. C. Spitz, East St. Louis.

5:00—"Chronic Sinus Disease in Children."—J. R. Lindsay, Chicago.

Discussions opened by Theo. E. Walsh, Chicago; Louis Ostrum, Rock Island; Thomas C. Galloway, Evanston.

### *Thursday Morning May 21, 1936*

8:30—Joint Session with Sections on Medicine, Surgery, Public Health and Hygiene and Radiology. See Section on Medicine for program.

#### SECTION ON PUBLIC HEALTH AND HYGIENE

W. M. Talbert .....Chairman  
Archibald Hoyne .....Secretary

*Tuesday Afternoon, May 19, 1936*

## KNIGHTS OF COLUMBUS BUILDING

2:30—"Treatment of Meningococcic Meningitis with Meningococcus Antitoxin."—Winston Tucker, State Health Department, Springfield.

Since February 1, 1935, fifty-eight cases of meningococci meningitis have been hospitalized in the St. John's Hospital unit for contagious diseases in Springfield. Of this number, 40 were from the City of Springfield, while the remaining 18 were from nearby communities. In addition to the clinical diagnosis, stained smears of the spinal fluid were prepared in each instance, and the diagnosis corroborated by the finding of meningococci in the smears. The first 16 cases were treated with antimeningococcus serum, but in spite of this treatment nine of the patients succumbed, which is a fatality rate of 56 per cent. During the latter part of March, 1935, meningococcus antitoxin was placed on the market, and this preparation has been used in the treatment of all subsequent cases of meningococcic meningitis in this hospital. Forty-two cases have been treated with this preparation, generally by the intravenous route, the antitoxin being diluted in twice the quantity of 10 per cent glucose solution. Death took place in 9 of the 42 patients, a fatality rate of 22 per cent. An analysis of this group of cases will be presented, with particular reference to the interval of time which elapsed between the onset of symptoms and the administration of meningococcus antitoxin.

Discussion opened by Thomas D. Masters, Springfield.

3:00—"Occurrence of Vercidal Substances in Patients with Poliomyelitis: Bearing on Serum Treatment and Vaccination."—Paul H. Harmon, and H. N. Harkins, Chicago.

The recent attempts at vaccination against poliomyelitis, together with the irregular appearances of neutralizing substances in the blood after an attack of poliomyelitis have prompted us to extend our original studies concerning the poliocidal substances in human serums, made in 1928 and 1929. At that time, the authors (in collaboration with Drs. H. J. Shaughnessy and F. B. Gordon) found neutralizing substances in a large number of normal persons, both adults and children. Limited observations upon the age incidence suggested the possibility of acquisition of these substances with increasing age. We have titrated recently monkey serums at frequent intervals following experimental poliomyelitis and determined the exact appearance time of the poliocidal substance. We have likewise titrated the serums of humans at all stages during early poliomyelitis and those of the same patients three and four months after the acute attack. We find that clinical poliomyelitis occurs when poliocidal substances are already present in the blood. An almost universal presence of these substances very early in the disease, so early that they could not possibly be

due to the current attack, suggest that the poliocidal substances have less to do with resistance and recovery in this disease than was formerly supposed. For example, in our series of fourteen serums, there are patients with little or no poliocidal substance that suffer only a light attack of the disease. It is quite noticeable that no patients with adequate initial amounts of poliocidal substance has had widespread paralysis. The general aspects of poliomyelitis immunity are discussed in relation to artificial immunity (vaccination) and to natural immunity.

Discussion opened by H. J. Shaughnessy, Springfield.

3:30—"A Five Year Review of Anterior Poliomyelitis in the Chicago Area."—Sidney O. Levinson, Chicago.

All preparalytic and early paralytic patients in the Chicago area during the years 1931 to 1935, inclusive, were treated with relatively large doses of convalescent poliomyelitis serum. Although there has been no epidemic during this time, cases have occurred endemically every year during the summer and fall seasons.

In the preparalytic group, a review shows that the mortality has been very low, and the incidence of paralysis almost negligible. Most of the weaknesses that appeared have been temporary and have cleared up within a short period after the illness. No severe degree of paralysis has supervened in those preparalytic cases who were treated with adequate doses of serum. In the early paralytic group, who were suffering from the active disease and in whom the paralysis seemed to be spreading, the results of serum therapy are difficult to evaluate. In general, the clinical impression has been that most of the patients have shown cessation of illness and some recovery from the paralysis.

Discussion opened by Julius Hess, Chicago.

4:00—"Episemic Respiratory Diseases in Early Life."—Scott Wilkinson, Decatur.

A clinical study of epidemic respiratory disease in infants and young children for the years 1931 to 1935, inclusive. An analysis of relative frequency as compared to certain common contagious diseases; the involvement of specific age periods; relation to influenza and other epidemics; the clinical features in early life. Comments on the interpretation of these findings from the epidemiological viewpoint.

Discussion opened by J. Howard Beard, Urbana.

4:30—"Cross Infection: Its Prevention in a Children's Hospital."—Maurice L. Blatt, Chicago.

The control of cross-infection is dependent upon

(a) The recognition and exclusion from the institution of contagious diseases in the pre-dromal, early and convalescent stages and when full blown.

(b) The recognition of carriers on admission.

(c) The giving of whole human blood to all new admits.



(d) If contagious case occurs in the institution, its isolation and the immediate immunization of susceptible contacts.

(e) Institution of specific therapy.

Discussion opened by Archibald Hoyne, Chicago.

5:00—"How to Reduce Infant Mortality."—Henry C. Niblack, Board of Health, Chicago.

The principal causes of infant mortality can still be classified into three groups: conditions peculiar to early infancy, respiratory, and gastro-intestinal diseases. The marked lowering of the infant mortality rate in some communities has been due principally to reducing the number of deaths from gastro-intestinal diseases. Future efforts must be directed toward reducing the deaths in the other two groups. A discussion of some of the measures along the above lines that are being carried out in a large metropolitan community.

Discussion opened by John Carey, Joliet.

### *Wednesday Morning, May 20, 1936*

KNIGHTS OF COLUMBUS BUILDING

Joint Session with Sections on Medicine and Surgery.

#### SYMPOSIUM ON AMEBIASIS

8:30—"Contagion and Public Health Aspect of Amebiasis."—Mr. Joel I. Connolly, Chicago.

This paper will give a brief summary of the findings in the outbreak of epidemic amebic dysentery having a focus in two Chicago hotels in 1933.

The reasons for believing that contamination of water through faulty plumbing was the principal cause of the outbreak will be presented, and the specific defects and methods of correction will be given. The lessons resulting from the epidemic, which are generally applicable, will be summarized.

Illustrative material will be used if possible.

Discussion opened by Clarence W. Kassen, Springfield.

8:50—"The Clinical Aspects of Amebiasis."—Samuel E. Munson, Springfield.

1. Blood may or may not be found in the stools, depending on the acute or chronic types.
2. Discomfort and pain in lower abdomen.
3. Poor appetite.
4. Leukocytes increased.
5. Where blood is not observed in the stools, occult blood is found.
6. Slides showing types of organism and effect on the tissues.

9:10—"The Laboratory Diagnosis of Amebiasis."—Bertha Kaplan Spector, Chicago.

9:30—"The Medical Management of Amebiasis."—Arthur E. Mahle, Wilmette.

9:50—"Surgical Problems in Amebiasis."—Gatewood, Chicago.

10:10—Opening Discussion (Pathological)—R. H. Jaffe, Chicago.

10:25—Public Health Discussion.—Andrew R. Mailer, Galesburg.

10:30—Medical Discussion.—R. F. Traut, Chicago.

10:35—Closing Discussions.

### *Wednesday Afternoon, May 20, 1936*

KNIGHTS OF COLUMBUS BUILDING

2:30—"The Incidence and Clinical Significance of the Various Types of the Diphtheria Bacillus Found in Illinois."—Thomas C. Grubb, and H. J. Shaughnessy, Springfield.

In 1931 Anderson and his co-workers in Leeds, England, announced that all strains of the diphtheria bacillus could be divided into three distinct types—gravis, mitis and intermediate—based on their colonial morphology on a chocolate-tellurite agar medium. They stated further that the gravis strains were associated with the more severe, toxic cases of diphtheria, while the mitis strains were usually isolated from the mild cases. In general, Anderson's original findings have been amply confirmed by subsequent studies in England.

In order to determine the incidence of the three types in this state, positive diphtheria cultures coming to the laboratories of the State Department of Public Health during the past six months have been grown on Anderson's chocolate-tellurite agar medium for the purpose of classifying the strains as gravis, mitis, etc. A small percentage of the culture has also been examined for virulence and starch fermentation. The clinical significance of the three types was determined by sending questionnaires to the physicians who had submitted the positive cultures. Information regarding the location of the false membrane, type of the disease, amount of antitoxin injected, response to the antitoxin, etc., was requested in order to ascertain the relative severity of the case. The above data have been tabulated and correlated.

Discussion opened by Perry J. Melnick, Decatur.

3:00—"Public Health Problems of Southern Illinois."—B. E. Montgomery, Harrisburg.

Communicable diseases result in substantially greater proportionate losses in southern Illinois than in either the central or northern sections of the State. Statistical data are presented which show that losses in the southern area from typhoid fever, infantile diarrhea, diphtheria, tuberculosis and whooping cough amount to 450 lives per year more than would be the case if mortality rates were no higher than elsewhere in the State. The excess infant mortality is about 250 deaths annually. The cause of these excess losses is a lack

of organized official public health facilities rather than racial characteristics, the quality of medical service or climate. Supportive evidence on these points is presented. A plan for improving the situation is offered.

Discussion opened by John J. McShane, Springfield.

3:30—"The Etiologic Diagnostic and Medico-legal Problems of Occupational Diseases."—C. O. Sappington, Chicago.

Silicosis has made the general population occupational-disease-conscious, but there are other important occupational diseases deserving of serious consideration.

Etiology has been a most neglected factor. Mere industrial exposure does not constitute a hazard. Industrial conditions must be critically studied and measured before correct diagnosis can be made. This does not mean reliance upon unproved statements in the history of the patient.

Diagnosis involves not only adequate examinations, but also appropriate clinical laboratory and x-ray data, as well as differential opinion. Pre-employment and periodic examinations are real diagnostic problems.

The chief medico-legal issues arise because of deficiency in etiologic information, and consequent errors in diagnosis. The medical profession must extend its influence and basic knowledge in occupational disease work if usefulness is to be continued and preserved.

Discussion opened by Wm. D. McNally, Chicago; Vernon Long, Decatur.

4:10—"Basic Principles in the Treatment of Acute Gonorrhea."—Leon M. Beilin, Chicago.

We are handicapped in our study of pathology and therapy of gonorrheal infection mainly on account of inability to reproduce this disease in lower animals and to develop an active immunity against this infection. Basic principles in the treatment of acute gonorrhea are summed up in the promotion of effective drainage through active diuresis, observation of rigid hygiene, etc. To be effective, the treatment must be continuous and measures taken to counteract the disease must at all times be appropriate for each succeeding stage in the inflammatory reaction of the tissues to the gonococcal invasion. After all, we are merely trying to assist Nature and not setting out to perform miracles with an imposing array of drugs.

Discussion opened by Harry C. Rolnick, Chicago.

4:40—"Effectiveness of the Oral Administration of Ephedrine in the Common Cold."—G. Howard Gowen, Chicago.

The treatment of acute coryza has been most diverse. To date there are no specific biological or pharmaceutical agents. Diehl's preparation of "papavarine and codeine" seems quite effective, but is too narcotic, and it is not unreasonable to suppose that the chief motive action of this treatment is that the patient does not care whether he has coryza or not, having been rendered

less alert to his distress by having been made somewhat "dopy." Considering that most cases of coryza are fundamentally of an allergic nature, we decided to experiment with an ephedrine preparation which has been successfully employed in some cases of Hay Fever, Asthma and other allergic states. As ephedrine has a tendency to cause psychic excitation, most especially insomnia, it seemed rational to combine it with a sedative such as an isoamylethylbarbituric acid.

We first employed in combination ephedrine sulphate 0.024 gm. ( $\frac{3}{8}$  grain) and isoamylethylbarbituric acid 0.048 gm. ( $\frac{3}{4}$  grain). The results on this first series of cases were:

Total cases treated.....	109
Improved .....	93 or 85%
Not improved .....	16 or 15%

We also observed at this time 37 controls to whom similar capsules were given containing only milk sugar. The results were:

Total controls .....	37
Improved .....	10 or 27%
Not improved .....	27 or 73%

During our investigations undue effects of the drug were observed in a few instances resulting in palpitation or gastric distress. On this basis we decided to employ a smaller dosage.

The revised dosage was ephedrine sulphate 0.008 gm. ( $\frac{1}{8}$  grain) and isoamylethylbarbituric acid 0.016 gm. ( $\frac{1}{4}$  grain). The results in the second series were:

Total cases treated.....	137
Improved .....	114 or 83%
Not improved .....	23 or 17%

In the second series there was only one case of palpitation and no cases of gastric distress.

We have just completed a third series of about 200 cases employing ephedrine sulphate ( $\frac{1}{8}$  grain) and isoamylethylbarbituric acid ( $\frac{3}{8}$  grain). We have not had time to evaluate our results, but we consider this to be the most satisfactory dosage and in general the results should be about as in the former series.

Our work was carried out on students, technicians, faculty members and a few outside cases. In all improved cases the course of the infection was definitely shortened, cutting down markedly the days of absence from duty and seemingly in this respect being a worthwhile preventive measure.

Discussion opened by E. F. Pearson, Springfield.

*Thursday Morning, May 21, 1936*

8:30—Joint Session with Sections on Medicine, Surgery, Eye, Ear, Nose and Throat and Radiology. See Section on Medicine for program.

#### SECTION ON RADIOLOGY

George M. Landau .....Chairman  
Roswell T. Pettit .....Secretary



*Tuesday Afternoon, May 19, 1936*

## KNIGHTS OF COLUMBUS BUILDING

- 2:30—"Interpretation of Hilus Shadows in Chest X-rays of Children."—John Bilger, Highland Park.

Structures making up hilar shadows, as check on findings at necropsy with x-rays. Films will be shown demonstrating normal hilus, hilar tuberculosis, pneumonia, Hodgkin's disease and other pathological conditions.

Discussion opened by D. O. N. Lindberg, Decatur; Joseph K. Calvin, Chicago.

- 3:00—"Renal and Ureteral Anomalies."—Wm. W. Fuery, Chicago.

Renal and ureteral anomalies have proven of great interest. Congenital anomalies constitute 40% of all pathologic conditions of the kidney and ureter, hence the necessity of recognizing them as something more than curiosities. Complete urologic and urographic examinations are essential.

Discussion opened by Arthur Sprenger, Peoria; E. L. Jenkinson, Chicago.

- 3:30—"Radiological Diagnosis and Treatment of Prostatic Lesions."—Perry B. Goodwin, Peoria.

Radiological evidence as produced by film study using an opaque medium and the results obtained from Roentgenotherapy in cases of carcinoma of the prostate.

Discussion opened by H. B. Henkel, Springfield.

- 4:00—"Irradiation Therapy of Intracranial Neoplasms."—T. J. Wachowski, and Adolf Hartung, Chicago.

This paper reviews the history of irradiation therapy of intracranial neoplasms. The dangers are pointed out and indications for treatment, based on histological and clinical studies, are presented. Fifteen cases of verified brain tumors treated by irradiation are presented.

Discussion opened by Eric Oldberg, Chicago.

- 4:30—"Intrapelvic Protrusion of the Acetabulum (Ott's Pelvis)."—Lawrence M. Hilt, Springfield.

Report of three cases (one was treated as a fracture for over two months). Approximately seventy cases of Otto's Pelvis have been reported in the literature, although first described by Otto in 1824.

Discussion opened by F. Flinn, Decatur; C. H. Zoller, Litchfield.

- 5:00—"Neuroblastoma from the Standpoint of the Roentgenologist."—Edwin L. Rypins, Bloomington.

A brief description of the pathology is to be given and three cases of the Hutchinson type are presented, giving characteristic Roentgen ray findings and microscopic sections and one case that was treated with x-ray.

The Roentgenologist can make a definite diagnosis, even though the pathologist cannot be sure.

Discussion opened by Cesare Gianturco, Urbana.

*Wednesday Morning, May 20, 1936*

## KNIGHTS OF COLUMBUS BUILDING

- 8:30—"The Radiologist and the Hospital."—W. M. Hartman, Macomb.

Is Radiology the practice of medicine or glorified hospital technical service? What is hospital service and what is medical service? Radiology, because of recent development, has been subjected to much economic strain. Responsibility of hospital staff. Solution lies with general medical profession.

Discussion opened by Everett Coleman, Canton; Perry Goodwin, Peoria.

- 9:00—"Chest Roentgenography: New Standards and Improved Techniques."—D. O. N. Lindberg, Decatur.

The criteria of adequacy of chest Roengenograms necessary to exclude demonstrable lesions is defined. Basic standards of technique to provide satisfactory films are discussed and indications for use of higher milliamperages, high speed Bucky and tubes with rotating anodes are presented.

Discussion opened by Roswell T. Pettit, Ottawa; Willard Van Hazel, Chicago.

- 9:30—"Roentgen Therapy of Cellulitis."—B. C. Cushway, and Roe J. Maier, Chicago.

Presentation of sixty cases of Cellulitis with discussion of present day conception of biological action of Roentgen radiation in this disease. Description of local and systemic reaction is given. Cooperation in treatment between attending physician and Roentgenologist is emphasized.

Discussion opened by I. S. Trostler, Chicago; Paul G. Papsdorf, Chicago.

- 10:00—Report of Cancer Committee of the Illinois State Medical Society.  
Bowman C. Crowell, *Chairman*, Chicago.  
E. G. C. Williams, Danville.  
Milton G. Bohrod, Peoria.  
J. Simonds, Chicago.  
R. H. Jaffe, Chicago.

- 10:30—"Comparative Value of Various Methods in the Roentgenological Examination of the Colon."—Cesare Gianturco, Urbana.

Various methods used in Roentgenological examination of colon are described and compared as to their value. Special consideration is given to the fluoroscopic examination to the double contrast technique and to the use of semi-transparent media.

Discussion opened by B. Orndorff, Chicago;  
Max Hubeny, Chicago.

*Wednesday Afternoon, May 20, 1936*

KNIGHTS OF COLUMBUS BUILDING

2:30—"The Principles of Radium Therapy."—  
Frank E. Simpson, Chicago.

Effects of radium rays on living tissues. The selective effects of radium instead of the caustic effects should be used wherever possible. The undesirability of trying to screen off tumors from the surrounding tissues. Surface irradiations contrasted with radium "puncture." Some of the reasons for the use of surface irradiations in preference to radium "puncture." The use of radium in some common diseases, such as carcinoma affecting the skin, mouth, cervix uteri, etc. Other uses of radium.

Discussion opened by Roswell T. Pettit, Ottawa; E. G. C. Williams, Danville.

3:00—"Radiation Therapy and Uterine Cancer."—Louis C. Kress, New York State Institute for Malignant Disease, Buffalo, New York.

Uterine Malignancy has been treated by all forms of radium and x-ray therapy—interstitial, intracavity, and external with radon seeds, radium tubes, packs and high voltage x-ray. Advantages of 4½ gram radium pack will be discussed. Advantages of high voltage x-ray will be presented. Slides showing effects of radiation upon cancer will be shown. End results and complications will be presented.

Discussion opened by Robert A. Arens, Chicago; Herbert Schmitz, Chicago.

4:00—"Repercussion Therapy."—E. G. C. Williams, Danville.

A report of the study and research into the use of repercussion or secondary radiation increased by injections of solutions and colloidal suspensions into tumor masses during x-radiation describing materials and methods used.

Discussion opened by Prof. Geo. L. Clark, Urbana; Roy Keggereis, Chicago.

4:30—"Use of Radium in Post-Operative Parotitis."—Fred Decker, Peoria.

X-ray and radium therapy have been used in treatment of inflammatory conditions for many years. The use of radium in the treatment of post-operative parotitis is not so commonly known. A brief résumé of the literature and case reports will be given.

Discussion opened by E. L. Jenkinson, Chicago; Lawrence M. Hilt, Springfield.

*Thursday Morning, May 21, 1936*

8:30—Joint Session with Sections on Medicine, Surgery, Eye, Ear, Nose and Throat and Public Health and Hygiene. See Section on Medicine for program.

RULES GOVERNING PRESENTATION OF PAPERS

"All papers read by members shall be limited to twenty minutes, and remarks in discussion to five minutes, floor privilege being allowed only once for the discussion of any one subject.

"All papers read before the Society or any of its Sections shall become the property of the Society. Each paper shall be deposited with the Secretary of the Section when read, and the presentation of a paper to the Illinois State Medical Society shall be considered tantamount to the assurance on the part of the writer that such paper has not already appeared and will not appear in medical print before it has been published in the ILLINOIS MEDICAL JOURNAL.

"A paper not heard in its scheduled turn shall be held subject to the call of the Chairman of the Section at the end of the regular session if time permits, or as an alternative at the end of the program.

"All subjects shall be confined strictly to the subject in hand.

"No paper shall appear in the printed transactions of the meeting unless read in full or in abstract."

(From the By-Laws of Illinois State Medical Society.)

SCIENTIFIC EXHIBITS

1. "Constitution and Cancer"—American Society for the Control of Cancer, New York City.

2. "The Infant's Stool"—Jesse R. Gerstley, Katherine N. Howell and David S. Cohn, Michael Reese Hospital, Chicago.

3. "Electrosurgical Obliteration of the Gall Bladder"—Max Thorek, Surgical Service, Cook County and American Hospitals, Chicago.

4. "Neuropsychiatric Relationships to General Medicine"—Groves Blake Smith, Godfred, Illinois.

5. "Cutaneous Manifestations of Syphilis"—Clark W. Finnerud, Representative for the Scientific Exhibit Committee of the Section on Dermatology and Syphilology of the American Medical Association, Rush Medical College of the University of Chicago.

6. "Statistical Studies"—Illinois Department of Public Health, Springfield.

7. "First Aid in Eye Injuries"—Thomas D. Allen and Glenway W. Nethercut, Illinois Eye and Ear Infirmary, Chicago.

8. "Demonstration of Collapse Therapy in Pulmonary Tuberculosis"—Chicago Municipal Tuberculosis Sanitarium, Chicago.

9. "Clinical and Experimental Studies in Cerebrospinal Fluid"—Abraham Levinson and David S. Cohn, Chicago.

10. "Permanent Identification of the New Born"—Gilbert P. Pond, West Suburban Hospital, Oak Park.

11. "Sweat; Physiological and Biochemical Studies"—Theodore Cornbleet, E. R. Pace and H. C. Schorr, University of Illinois Medical School, Chicago.

12. "Electric Stethoscope and Stethograph"—Joseph K. Narat, Chicago.

13. "Pathology of Amebiasis"—R. H. Jaffe, De-



partment of Pathology, Cook County Hospital and Cook County Graduate School of Medicine, Chicago.

14. "The Incidence of Atherosclerosis"—N. S. Davis, III, Department of Pathology, Northwestern University Medical School, Chicago.

15. "Effect of Metabolic Disturbances of Teeth"—I. Schour and A. G. Brodie, University of Illinois College of Dentistry, Chicago.

16. "The Pigmentations of the Skin Including Neoplasms"—S. William Becker, Section of Dermatology, University of Chicago.

17. "Edema and Blood Pressure as Influenced by Minerals"—M. Herbert Becker, Renal Clinic, Northwestern University Medical School, Chicago.

18. "Radium and Radium Therapy"—Frank E. Simpson, Frank E. Simpson Institute of Radium Therapy, Chicago.

19. "The Diagnosis and Management of Upper Abdominal Problems"—J. Donald Milligan, Pelton Clinic, Elgin.

20. "Vitamin C: Cevitamic Acid"—Arthur F. Abt, Northwestern University Medical School, Chicago.

21. "Glands of Internal Secretion"—W. O. Thompson, Arthur Dean Bevan, N. J. Heckel, P. K. Thompson and S. G. Taylor, III, Rush Medical College, Presbyterian and Cook County Hospitals, Chicago.

22. "The American Medical Association."

23. "Illinois State Planning Commission."

24. "Tumors of the Skin"—Erwin P. Zeisler, Northwestern University Medical School, Chicago.

25. "Diabetic Coma, Its Prevention and Treatment"—R. T. Woodyatt, Chicago.

26. "Radiographic Study of Anatomy"—Harold O. Mahoney, Northwestern University Medical School, Chicago.

27. "The Medical Library"—Sangamon County Medical Society, Springfield, Ill.

NOTE: This list is incomplete, but the complete list and data concerning scientific exhibits will be published in the May ILLINOIS MEDICAL JOURNAL.

#### TECHNICAL EXHIBITORS AT 1936 ANNUAL MEETING

A. S. Aloe Company, St. Louis, Missouri.

Bard-Parker Company, Inc., Danbury, Connecticut.

R. B. Davis Sales Company, Hoboken, New Jersey.

DePuy Manufacturing Company, Warsaw, Indiana.

Gerber Products Company, Fremont, Michigan.

H. J. Heinz Company, Pittsburgh, Pennsylvania.

Horlick's Malted Milk Corporation, Racine, Wisconsin.

Kellogg Company, Battle Creek, Michigan.

J. B. Lippincott Company, Philadelphia, Pennsylvania.

Libby, McNeill & Libby, Chicago, Illinois.

Lea & Febiger, Philadelphia, Pennsylvania.

Lepel High Frequency Laboratories, New York, New York.

V. Mueller & Company, Chicago, Illinois.

The C. V. Mosby Company, St. Louis, Missouri.

Mellin's Food Company, Boston, Massachusetts.

McIntosh Electrical Corporation, Chicago, Illinois.

The Medical Protective Company, Wheaton, Illinois.

M. & R. Dietetic Laboratories, Inc., Columbus, Ohio.

Middlewest Instrument Company, Chicago, Illinois.

Mead Johnson & Company, Evansville, Indiana.

Philip Morris & Co., Ltd., Inc., New York, New York.

Sutliff & Case Co., Inc., Peoria, Illinois.

W. B. Saunders Company, Philadelphia, Pennsylvania.

Universal Products Corporation, Pottstown, Pennsylvania.

White-Haines Optical Company, Columbus, Ohio.

#### NOTES ON EXHIBITS

The Universal Products Corporation will be represented by an exhibit of Surgeons' X-L-Lyte, a compact and serviceable diagnostic set, and not expensive. The set contains: ear speculum, tonsil pillar retractor, tongue depressor, magnifying lens, and nasal speculum, with direct illumination for all. Nickel silver curette, probe, ear spoon and applicator are included in the set. The entire set is contained in a neat and serviceable leather case which is equipped with a hookless fastener.

The A. S. Aloe Company, in Booth No. 1, will show a complete general line of instruments and equipment, offering everything for the doctor and hospital. A line of rustless steel instruments will be offered at a special discount. In addition will be shown the new Aloe Short Wave Diatherm and the new style Elliott machine. The Aloe Company's Illinois representatives, Mr. Kruse and Mr. Drennan, will be in attendance to serve in any way possible.

Look up these unusual new books at the J. B. Lippincott's exhibit: Pfandler and Schlossmann, "Diseases of Children"; Peham and Amreich, "Operative Gynecology"; Kirschner and Ravdin, "Operative Surgery"; McBride, "Disability Evaluation"; Herrmann, "Passive Vascular Exercises"; Barker, "Treatment of the Commoner Diseases"; Emerson, "The Nervous Patient"; Barborka, "Treatment by Diet"; Goldthwait, "Body Mechanics"; Sr. Gabriel's "Through the Patient's Eyes"; Moore, "Principles of Ethics."

And the new editions just issued of these well-known texts and reference books: Eisendrath and Rolnick, "Urology"; Anspach, "Gynecology"; Davis and Muller, "Applied Anatomy"; Thorek, "Surgical Errors and Safeguards"; Rehberger, "Quick Reference Book of Medicine and Surgery"; "International Clinics," and "Annals of Surgery."

All these books are unusually and beautifully illustrated, with the exception of Barker, and must be seen to be appreciated. You will be welcome at Booth No. 2 and will not be importuned to buy.

The most exacting requirements of adequate liability protection are those of the professional liability field. Representatives thoroughly trained in professional liability underwriting invite you to confer with them at Booth No. 4. These are the representatives of The

Medical Protective Company, specialists in providing protection for professional men.

When you are visiting the commercial exhibits, spend some of your time at Booth No. 5 to have demonstrated some of the outstanding features of the new "Jones Motor Basal" made by the Middlewest Instrument Company, Chicago, Illinois. You will be interested in the waterless, noiseless, no calculation of this lifetime-guaranteed instrument.

The DePuy Manufacturing Company will exhibit in Booth No. 8 at the Illinois State Medical Meeting in Springfield the DePuy Reducing Frame for double fractures of the lower leg, the adjustable Hyperextension Frame for applying plaster jackets, the double duty Bone Drill which will handle Kirschner Wire and Steinman Pins, various types of Kirschner Bows to meet the needs of the individual or industrial surgeon or the surgeon who does referred work, the Rocking Leg Splint for each bed pan service and treatment of fractures of the femur, gunshot wounds of the lower leg.

At Booth No. 9 Lea & Febiger exhibit, under the supervision of Mr. L. E. Drury, a number of important new works, as well as new editions of other standard medical books. Among the new works are: Hawes and Stone, "Pulmonary Tuberculosis"; DeRivas, "Parasitology and Tropical Medicine"; Berglund and Medes, "The Kidney"; Graham, Singer and Ballon, "Surgical Diseases of the Chest." New editions are also shown of Bridges' "Dietetics"; Kovac's "Electrotherapy and Light Therapy"; Jelfie and White, "Diseases of the Nervous System"; Pemberton, "Arthritis"; Speed, "Fractures and Dislocations"; Boyd, "Pathology of Internal Diseases"; Knowles' "Dermatology"; Stimson, "The Common Contagious Diseases," and Haden's "Dental Infection and Systemic Disease."

The Philip Morris & Co., Ltd., Inc., in Booth No. 10 will demonstrate the method by which it was found that Philip Morris cigarettes, in which diethylene glycol is used as the hygroscopic agent, are less irritating than ordinary cigarettes in which glycerine is employed.

Gerber's Strained Foods will be on display at Booth No. 11. There are illustrations and charts descriptive of the new Shaker Cooker process and samples open for inspection.

Booklets and leaflets are available, also scientific reprints. Some of the booklets are suitable for distribution by physicians, and we welcome inspection before ordering supplies.

A feature of the Mead Johnson exhibit in Booth 12 will be a display of the Percomorph group of products; namely, Mead's Oleum Percomorphum, 50%, in liquid and in capsule form, and Mead's Cod Liver Oil Fortified with Percomorph Liver Oil.

The selection of Mellin's Food as a milk modifier enables the physician to have at hand an effective means for making diet adjustment to meet the needs of the individual infant and without sacrificing nutritional requirements. You are urged to call at Booth No. 13 to discuss your feeding problems.

V. Mueller and Company will present an interesting exhibit of the latest surgical instruments and equipment for the Surgeon, Specialist, and General Practitioner at Booth No. 14, featuring:

New Sightscope for magnified vision, with illumination attachment.

The Elliott Treatment Regulator for applying heat therapy for acute or chronic inflammatory conditions in the female pelvis and the male pelvis.

Masson's Fascia Stripper.

Thomas Oxinjector—a new apparatus for the administration of oxygen or other gases by the injection method: subcutaneous, intravenous, intraperitoneal, or rectal.

New Model Focal-Lite—an all purpose headlight. Projects a clear beam of light for illuminating cavities.

Smith-Peterson-Johansson Flanged Nail, with an improved mallet, as used by Dr. M. S. Henderson of Rochester, Minnesota.

The most outstanding recent development in the science of infant feeding—Libby's Homogenized Foods. This new process mechanically ruptures the food cells of vegetables, fruits, and cereals, refines the cellulose tissue, releases the contained nutriment, and makes these foods more easy to digest and more completely assimilated. Photomicrographs of strained and homogenized foods graphically illustrate the advantages of the newer process. The Research Laboratories of Libby, McNeill & Libby invite you to inspect their display in Booth No. 15.

Quality physical therapy products of McIntosh Electrical Corporation, 223-233 North California Avenue, Chicago, will be on exhibit in Booth No. 16. The meeting will be in charge of the Sales Manager, Mr. R. Herbert Hogan. Mr. Hogan will be assisted by two Illinois state representatives, Mr. E. N. Swinford and Mr. J. W. Maselter. The Hogan Brevatherm Short-Wave Diathermy Unit will be featured. The Brevatherm has proven itself to be one of the outstanding short-wave units on the market, and acceptance by the Council on Physical Therapy of the A. M. A. gives assurance of its safety and operating efficiency in actual clinical work. Other McIntosh equipment on exhibition include the new No. 1510 Modernistic Sinustat, the No. 8624 Standard Diathermy, and one of the best dollar value units in infra-red therapy, the No. 3610 Biolite.

This publishing house of Philadelphia and London, W. B. Saunders Company, will exhibit a complete line of all their titles in Booth 17. Among them will be many new books and editions, including Christopher's brand new Textbook of Surgery, the new Mayo Clinic



Volume, Berens' work on the Eye and Its Diseases, Levine's Clinical Heart Diseases, Diseases of the Respiratory Tract (Fortnight Lectures of the New York Academy of Medicine), Wolf's Endocrinology in Practice, Rehfuess and Nelson's Medical Treatment of Gall-bladder Disease, Eusterman and Balfour's Diseases of the Stomach and Duodenum, Hinman's Urology, The Improved Medical Clinics of North America and the Surgical Clinics of North America, and many others. In addition, of course, there will be such standard works as Curtis' Obstetrics and Gynecology, Bickham's Operative Surgery, Beckman's Treatment, Kitchens' Diagnosis, Todd and Sanford's Laboratory Diagnosis.

You are invited to visit Booth No. 18. Not only will you be cordially welcomed, but you will be served delicious Cocomalt—hot or cold—as you choose. Come early—come often.

Cocomalt has a rich content of Iron, Calcium, Phosphorus and Vitamin D. It is an outstanding high quality food product scientifically formulated.

In Booth No. 20, Sutliff & Case Company, Inc., will display only one item at the Illinois State Medical Meeting at Springfield. This item, of course, is A-Viam-Ung—the new Vitamin "A" ointment.

The Horlick's Malted Milk Corporation in Booth No. 21 will exhibit Horlick's the Original Malted Milk, both in natural and in chocolate flavors, powder and tablet forms.

Among the special uses of Horlick's Malted Milk which will be featured are its advantages in the liquid diet, notably in cases of tuberculosis and other wasting diseases, during and after pneumonia, in gastric and duodenal ulcers and acidosis. Horlick's has also been proven by its results, for over fifty years, as a dependable food in infant feeding, even in difficult cases.

Among the Bard-Parker products to be exhibited at Booth No. 22 will be the new Rib-Back surgical blade, incorporating new standards of sharpness, rigidity and strength. Also will be shown a complete line of stainless steel scissors with renewable edges, which require no resharpening, and a very complete demonstration of Rustproof Sterilization for surgical instruments.

H. J. Hein Company, Pittsburgh, Pennsylvania, invites you to visit their display in Booth No. 23 of Tomato Juice, Breakfast Cereals and Strained Foods, especially prepared for infant and convalescent feeding.

Register for the second edition of their Nutritional Charts. This revised edition, published in December, 1935, contains, along with the vitamin, mineral and food composition charts, new sections on daily requirements and food allergy.

The exhibit of The White-Haines Optical Company, distributors of Blue Ribbon Ophthalmic Supplies, with general offices located at Columbus, Ohio, will feature the latest developments of Optical Science. White-

Haines have a Springfield office located at 524 East Capitol Avenue.

Included in the exhibit (Booth No. 24) will be a demonstration of Loxit, a screwless construction type of rimless glasses. Lenses to be featured are the Panoptik Bifocal (including the improved cataract lens) and the Orthogon Soft-Lite lens that provides glare protection with wide vision correction. A particularly interesting section of the exhibit will be the display of Bausch & Lomb instruments, including the Clason Visual Acuity Meter, the Binocular Ophthalmoscope, the Slit Lamp, also the instrument that aroused so much interest throughout the country—the Wottring Rotoscope that simplifies the whole procedure of Orthoptic Training. The Rotoscope, first shown at the Academy meeting last year in Cincinnati, is now being used all over the country by Ophthalmologists, hospitals and clinics.

The White-Haines exhibit will be in charge of E. F. Wildermuth, general sales manager from Columbus, Ohio. Joe Kihn, manager of White-Haines of Springfield, and Donald Hunter, salesman. Be sure to visit Booth No. 24 if you are doing eye work.

The C. V. Mosby Company will exhibit its complete line of medical publications. Among the newer items to be displayed for the first time will be the following:

Taussig, "Abortion—Spontaneous and Induced."

Bray, "Clinical Laboratory Methods."

Dodge, "Medical Mycology."

Shelling, "The Parathyroid in Health and Disease."

Sherwood, "Immunology."

Murray, "Examination of the Patient."

Hansel, "Allergy of the Nose and Paranasal Sinuses."

Many other new books and new editions will also be available for visitors attending the convention to examine them. A cordial invitation will be extended all guests at this meeting to visit the Mosby booth No. 28.

The Lepel High Frequency Laboratories, Inc., New York City, will display their mobile and portable short and ultra-short wave machines, and also the Lepel quartz-mercury Ultra-violet Lamp.

These products have been accepted by the A. M. A. and have received the endorsement of leading physicians everywhere. Don't fail to see the Lepel exhibit at Booth No. 30.

Doctors are invited to visit the Kellogg Booth No. 53 for a cup of refreshing Kaffee Hag Coffee. Bottle exhibits showing the stages in decaffeinating coffee are displayed and complete explanation of process is given. Reprints of articles in the *Journal of Pharmacology and Experimental Therapeutics* on the Effects of Caffeine, based on reports of research at the University of Michigan, are available.

Kellogg's All-Bran carries the Seal of Approval of the American Medical Association. Reprints of reports covering research on bran at Columbia University will

be distributed at the booth. The exhibit is in charge of Mrs. Winifred B. Loggans from the Home Economics Department.

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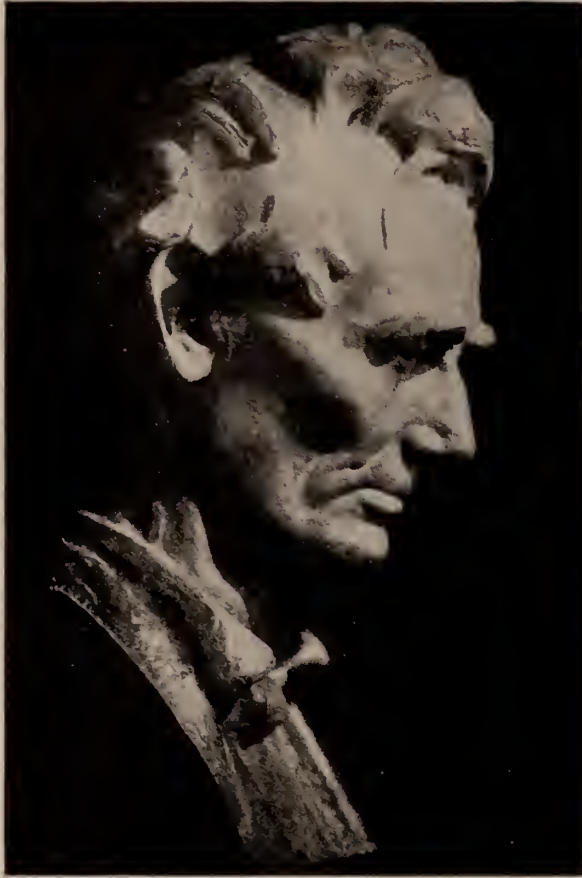
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## HISTORIC SPRINGFIELD



Abraham Lincoln

Head of the Andrew O'Connor statue at east front of the Illinois State Capitol. This fine monument was unveiled on October 5, 1918, Illinois centennial year. It represents Lincoln in a saddened mood as he made his farewell address to Springfield from the rear platform of the train that was taking him to Washington. The words of this address are inscribed in granite on the west side of the monument.



Illinois Supreme Court Building—North Front



Abraham Lincoln Hotel  
Headquarters Hotel



Memorial Hall—Illinois Centennial Building



Lincoln's Home





Knights of Columbus Building

—General Sessions here



Illinois State Capitol from the Air

## Original Articles

### POSITIVE AND PERMANENT IDENTIFICATION OF THE NEW BORN

GILBERT PALMER POND, B.S., M.D.,

OAK PARK, ILL.

The present day trend of increasing hospital births makes the possibility of mixing new born infants greater than ever before in the history of obstetrics. Hospitals and obstetric services have striven to lessen this possibility with the use of various methods and combinations of methods and have kept the number of cases of mixed identity surprisingly low, but each new case of mixed identity, especially if it has received newspaper publicity, stimulates the efforts of hospital authorities to devise a fool proof method. The various methods suggested and used up to recent date have been ably reviewed by a Cuban physician<sup>1</sup> in a paper read before the 17th American Convention of the International Association of Identification in Rochester in 1931. In that paper he states that he believes that of all the methods yet devised, the footprint is the most valuable.

Up to 1921 footprints were taken and filed with hospital records without any attempt at classification for ready reference. Such prints are valuable psychologically, but technically only for comparing a known baby with known prints during hospitalization. In 1921 Robinson<sup>2</sup> reported the use of classification of sole prints. In 1925 Montgomery<sup>3</sup> advocated the use of Wilder's<sup>4</sup> method of classification of sole prints and used it at the Madison General Hospital. Since then there has been no report forthcoming in medical literature of its continuence or workable value.

In September, 1932, Dr. Louis F. Alritz of the obstetrical staff of the West Suburban Hospital considered the advisability of establishing footprints as ordinarily made in the routine protective measures of the hospital. The matter was brought to my attention and we both were doubtful of its value. I undertook an investigation of infant identification and the subsequent work was made possible by the hearty cooperation and encouragement of Dr. Alritz.

Not being satisfied with merely disproving the value of footprints for wrinkles and measure-

ments, it was decided to make an intensive study of footprints with the idea of using the Wilder<sup>4</sup> method of sole print classification advocated by Robinson<sup>2</sup> and Montgomery.<sup>3</sup> This led to a general study of the papillary ridge integument of the soles, fingers, toes and palms.

A series of careful sole prints was made with discouraging results for two main reasons. First of all there are so many fine wrinkles on the soles of the new born infant that the papillary or friction ridges are interrupted by them so frequently and at such short intervals that the patterns are rendered indistinct. Secondly, the sole patterns run up the side of the foot and up under the toes to such an extent that it is difficult to get all the patterns necessary for complete classification on a single print with any uniformity. It is my belief that while the method of classifying sole prints devised by Wilder<sup>4</sup> and advocated by Montgomery<sup>3</sup> is adequate and comprehensive it is too difficult for average hospital use where trained workers are unavailable.

I disagree with Cummins<sup>5</sup> who takes the ground that the hospital's responsibility rests solely in giving a mother her own child and proving the identity in an immediate disputed case. I believe that the hospital is essentially an institution for public benefit, with that benefit paid for by the public either by pay for services rendered or by charitable contributions, and that if a hospital takes prints of infants born within its walls for the protection of its reputation and to protect itself against litigation those prints should be available within reason to the public in a form allowing ready reference even over a period of many years. This is a humane service in cases of dire distress and can only be adequately accomplished by a comprehensive method of classification. Therefore classification became a paramount object in finding or devising a suitable method of infant identification.

A summary of conclusions of the investigation up to this point were as follows:

1. That footprints for recording wrinkles were of scant value even for a period of ten days and of no value beyond that time.

2. That prints of the foot made to record papillary ridge patterns for classification purposes were not practicable.

3. That toe or finger prints were impossible because of the difficulty in securing perfect rolled

<sup>1</sup>Read before the Chicago Gynecological Society, November 15, 1935.



prints of all ten tiny digits for classifying by the standard method.



Fig. 1. Ridges in the palmar skin flow in straight lines and curves forming groupings and patterns. These patterns occur in definite areas bounded in the most part by fixed landmarks. These landmarks are triangular arrangements of ridges at the bases of the four fingers, called "Deltas." The pattern areas are six in number, designated by Roman Numerals.

4. That no suitable method of infant identification has as yet been reported.

The problem of devising a new and suitable method of infant identification embodying a workable classification was then contemplated and in order to have a fixed object in view the following list of essentials for an adequate method was compiled.

1. Ease of making prints, preferably by one operator.

2. Clarity and uniformity of papillary ridge prints, preferably by simple impression rather than rolled prints.

3. Adaptability of print taking to birthroom routine immediately after birth before any mixing can occur.

4. A choice of area to be printed that is easy of access and where an abundance of patterns occur in a small space.

5. Relative simplicity of classification so that nurse, laboratory technician, or librarian may learn to make accurate classifications with a minimum of training.

6. A method of classification of ridge patterns of the chosen area that is adequate for universal application.

7. A classification method that easily lends itself to filing for ready reference for any length of time after the prints have been taken.

8. A print from the mother on the same card

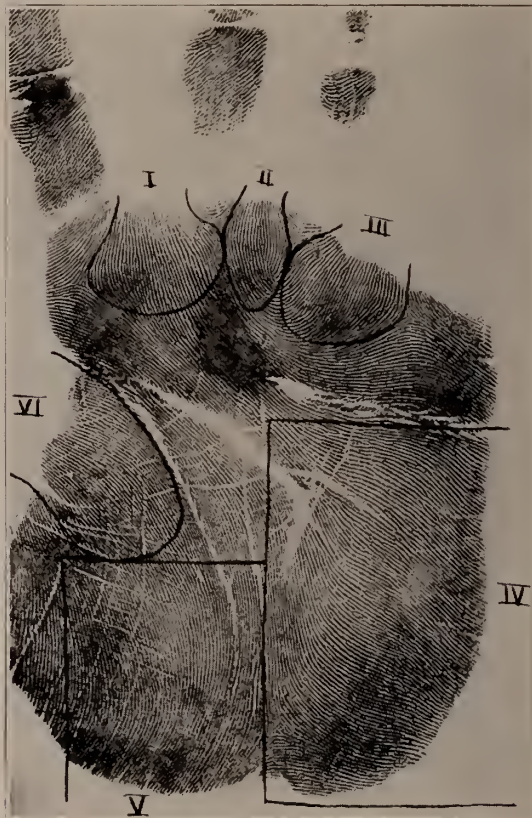


Fig. 2. The first three areas are in the interdigital spaces between the deltas and are numbered beginning at the index finger. The fourth area is the whole hypothenar area, the fifth is the thenar area, and the sixth is the interdigital space between the thumb and index finger.

For the purpose of classifying and recording the configuration of palmar ridges certain letters are used to designate pattern types. These letters are placed in bracketed spaces whose number corresponds to the number of the pattern area in which it is found.

When any area is devoid of patterns the corresponding area in the bracket is left blank.

as the infant print to establish a record of relationship.

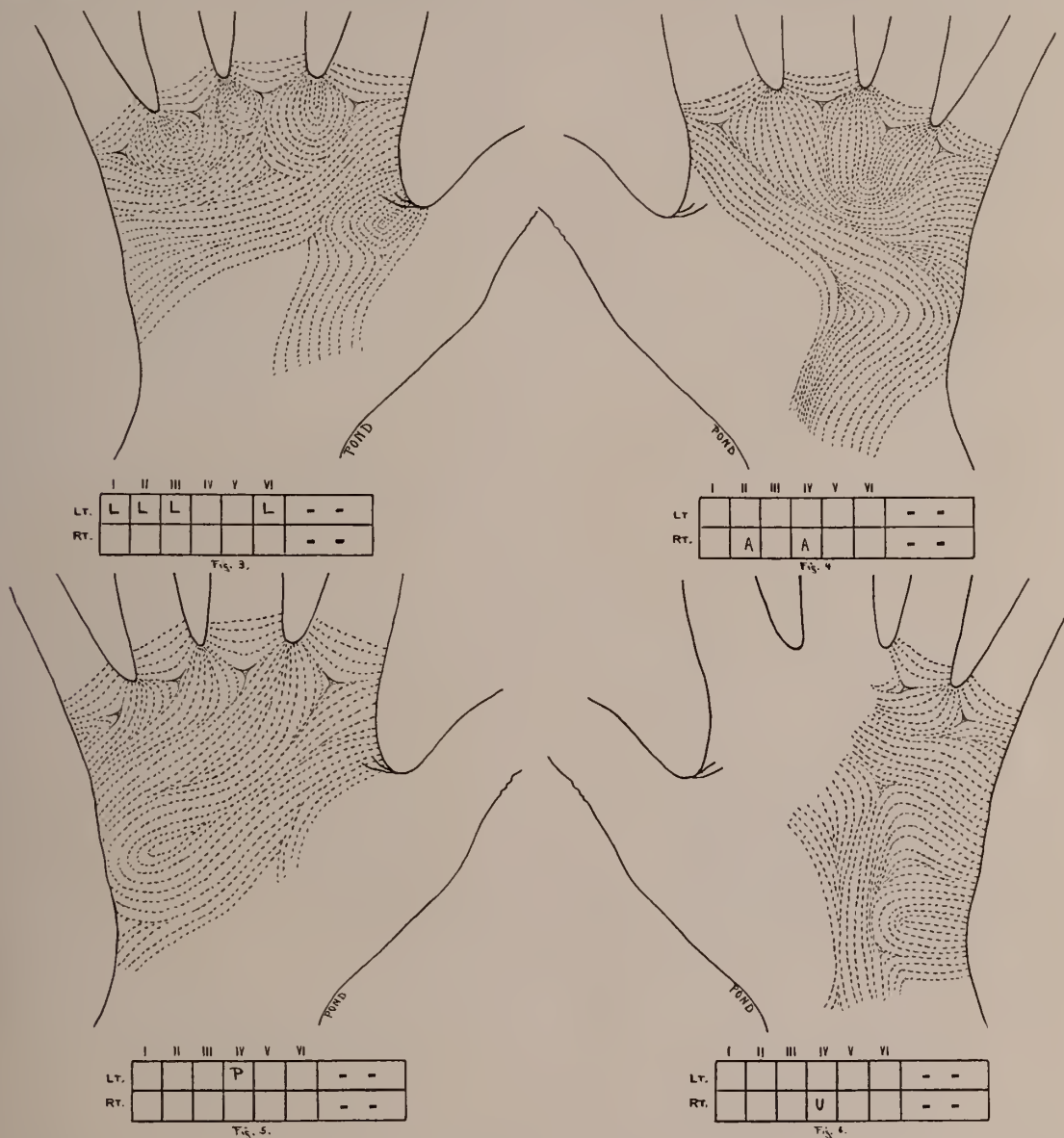
9. A low cost of operation for the method.

A method fulfilling these criteria would not be intended to replace the bracelets and tags in

general use for nursery recognition of infants, but would be a positive means of identification held in reserve in case of disputed identity or loss of identity not only for the duration of hospitalization but for the life of the infant. It

would be equal in value to the fingerprint method of identifying adults, which is not applicable to infants.

Application of these standards to all papillary ridge bearing surfaces of the human body elim-



#### "L" Loop Patterns

Fig. 3. Patterns designated by the letter "L" are found only in the interdigital spaces, i. e., areas I, II, III, and VI. These are simple loops, with either free or closed ends which are directed from the interdigital space toward the center of the palm. The ridges forming the loop originate in the space between the fingers, sweep down to form the one side, curve around with convexity toward the palm, then sweep back up and end in the same interspace from which they originated.

#### "A" Arch Patterns

Fig. 4. Occasionally a loop-like pattern occurs in which the open ends do not originate in the same area, i. e., one end of the pattern will come from one interspace and the other end will be found to pass out in an adjacent area. This is called an "Arch Pattern" and is designated by a letter "A" placed in the bracket space corresponding to the first area in which the pattern occurs. Thus if the arch begins in the second area and ends in the third the designating letter is placed in the

second space in the bracket. When the arch is in the fourth area one end is usually in the palmar area and the other in the carpal area. The designating letter is placed in the fourth space in the bracket.

#### "P" Palmar Loops

Fig. 5. Loops whose ridges originate near the center of the palm with their convexity in or pointing toward the hypothenar area are called "Palmar Loops" and are designated in the bracket by the letter "P". These occur in the fourth area only.

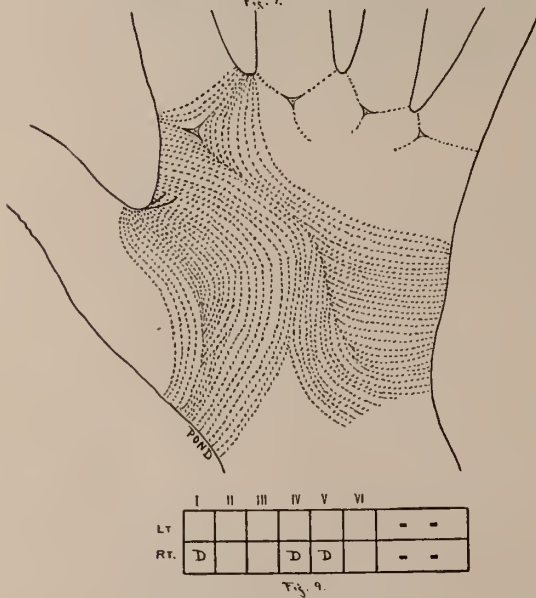
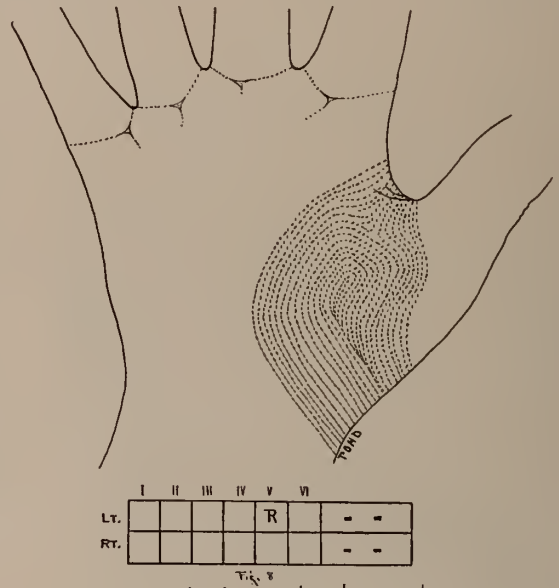
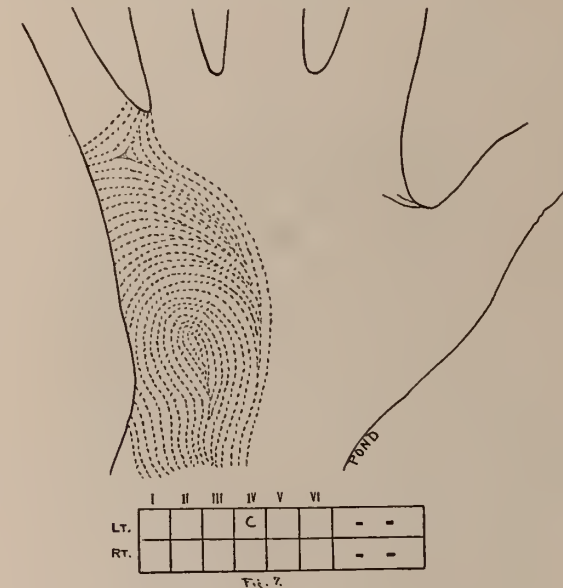
#### "U" Ulnar Loops

Fig. 6. Loops whose origin is at the outer or ulnar border of the hypothenar area with the convexity toward the center of the palm are called "Ulnar Loops" and are indicated in the bracket by the letter "U". These are found only in the fourth area.



inated all areas except the palms which have never been reported in the literature with regard to infants and only meagerly in regard to adults and the only palm classification extant was found to be inadequate and impracticable.

This classification of palm prints is described by Wentworth and Wilder.<sup>4</sup> Their method of classification is quite technical having a numerator and denominator for a single palm. The numerator visualizes the palm at a glance in one



#### "C" Carpel Loops

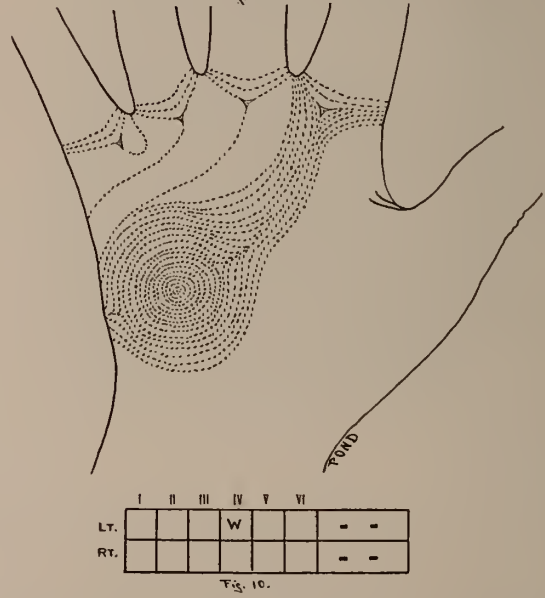
Fig. 7. Loops originating in the carpal area, at the heel of the hand, with the convexity upward and usually outward are called "carpel loops" and are indicated by the letter "C". These occur only in the fourth area.

#### "R" Radial Loops

Fig. 8. Loops occupying the thenar or fifth area originating on the radial side are called "Radial Loops" and are indicated in the bracket by the letter "R".

#### "D" Dendritic Patterns

Fig. 9. When there is a definite grouping of ridges in the form of a branching, and when there are ten or



#### "W" Whorls

Fig. 10. Patterns formed by ridges in concentric rings are called "whorls." These have been found most often in the fourth and fifth areas, but they may occur in any area. Whorls are indicated in the bracket by the letter "W."

Phylogenetically the whorl is the most primitive form of pattern. All other patterns are derived from the whorl.

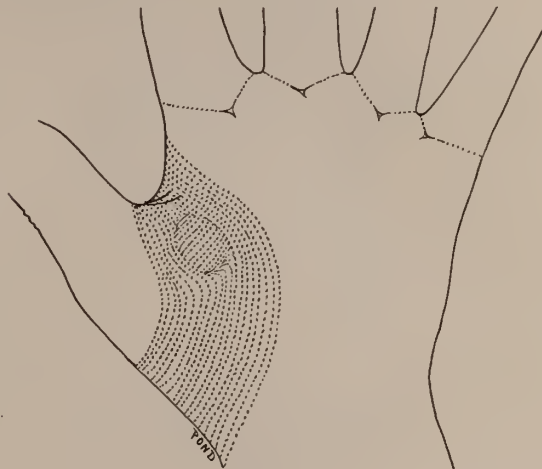
respect, but the print must be complete even to the center of the palm to obtain the formula. Then to find the denominator one must refer to

a table almost in logarithmic fashion, after which, if one desires to reconstruct the palm from the formula (or in other words visualize it)



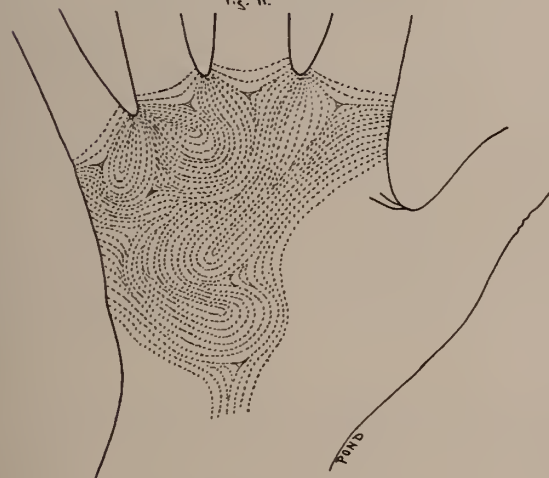
	I	II	III	IV	V	VI
LT.				S		- -
RT.						- -

Fig. 11.



	I	II	III	IV	V	VI
LT.						- -
RT.				1		- -

Fig. 12.



	I	II	III	IV	V	VI
LT.			LL	PP		- -
RT.						- -

Fig. 13.

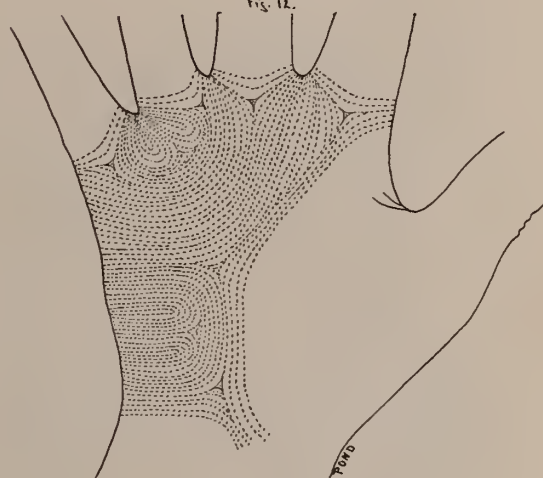
### "S" Spiral Whorls

Fig. 11. When a whorl pattern is not concentric, but is composed of spirally expanding ridges about a central point it is called a "Spiral Whorl" and is indicated in the bracket by the letter "S."

Phylogenetically this is the first step in the conversion of the whorl into other patterns. The next step is the loop, and finally the arch (which see).

### "I" Inlay Patterns

Fig. 12. Occasionally there is found in the fifth area or at the junction of the fifth and sixth areas a series of sharply defined ridges lying at right angles to the general flow of ridges of that area. This is called an "Inlay Pattern" and is designated in the bracket by the letter "I".



	I	II	III	IV	V	VI
LT.			LL	DD		- -
RT.						- -

Fig. 14.

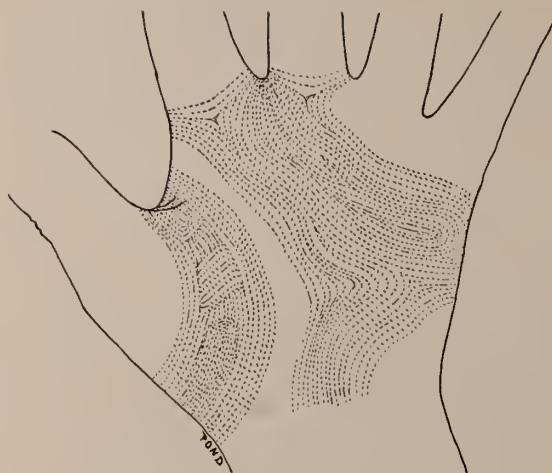
### Twin Patterns

Fig. 13. Occasionally there are found in one pattern area two separate and distinct, but identical patterns. These are called "Twin Patterns" and are designated in the bracket by two designating letters of the same kind such as, "LL," "PP," etc.

### Combined Twin Patterns

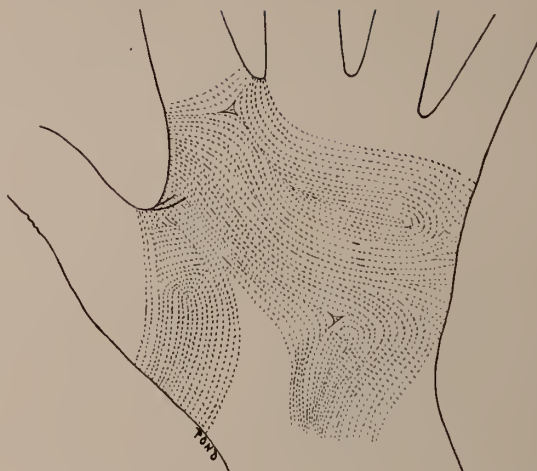
Fig. 14. When two similar patterns occur in the same area which are *not* separate and distinct, but which are united or combined they are called "Combined Twin Patterns". Two loop patterns may be combined by a larger loop which embraces both, or, diverging ridges forming a dendritic pattern may converge again to form a second "D." These combined forms are indicated by a line over the top of the two designating letters, as "LL," "DD," etc.





	I	II	III	IV	V	VI
LT.						- -
RT.				PA	RI	- -

Fig. 15.



	I	II	III	IV	V	VI
LT.						- -
RT.				DP	RI	- -

Fig. 16.



	I	II	III	IV	V	VI
LT.				CAC	DR1	- -
RT.						- -

Fig. 17

### Double Patterns

Fig. 15. Frequently two separate patterns of different form are found in the same area. These are called "Double Patterns" and are designated by two designating letters in the same bracket area. The upper pattern is always given first. The above chart illustrates many, but not all the combinations that occur.

### Combined Double Patterns

Fig. 16. The ridges of one pattern of a double group in one area may flow into and form part of the second pattern of the double group, thus uniting or combining the two. This form of double group is called a "Combined Double Pattern," and is indicated in the bracket by the two designating letters with a line above them, as "DL," "PU," etc. The above chart illustrates many, but not all of the possible combined double groups.



	I	II	III	IV	V	VI
LT.						- -
RT.	L			R		- -

Fig. 18.

### Triple Patterns, Separate and Combined

Fig. 17. Rarely three patterns are found in one area. This occurs mostly in the fourth area, but may occur in others. Four patterns in one area have actually been found, but for classification purposes three is taken as the limit. In dropping a pattern from the classification formula the least important one is dropped which is usually the dendritic pattern. (See Fig. 17. In reality the combination would be DACC, but is put as CAC.)

### Displaced Patterns

Fig. 18. Occasionally a pattern, particularly a loop pattern will appear to be in one area but by tracing its origin it will be found to really belong to another, i. e., a loop may have its origin in one area but the convexity may be in the adjacent, or even in the second area from its origin. These are called "Displaced patterns". In the bracket the designating letter is put in the area of its origin and an arrow pointing to the area of displacement. Arrows are used only to indicate displacement.



	I	II	III	IV	V	VI
LT.						- -
RT.			XP	XS		- -

Fig. 19.

#### Accidental or Abortive Patterns

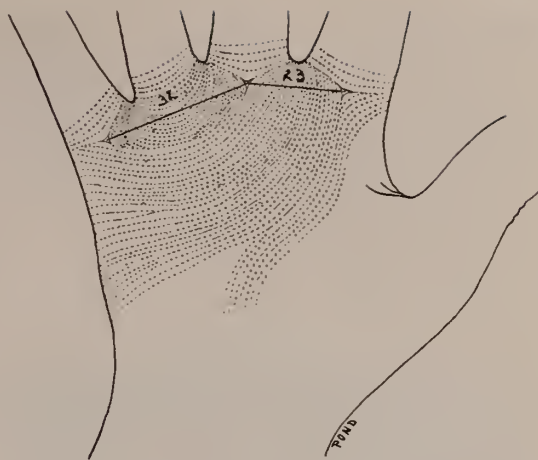
Fig. 19. Occasionally a pattern is encountered which is not exactly classifiable as one of the ten listed single patterns or their combinations. There will be a resemblance to a listed pattern, but yet cannot rightly be called such. These are called "Accidentals" and are indicated in the bracket by an "X" followed by the letter which indicates the pattern they most resemble. If the resemblance is uncertain and possibly dual then a reference is made to the second resemblant pattern above the bracket for the left palm and below it for the right. This is to facilitate the search for an unknown.

Fig. 21. Occasionally the third delta is missing. In that case the ridge count is made by counting first the number of ridges between the first and second deltas, then using a "zero" to designate the second count, and finally counting the ridges between the second and fourth deltas, which constitutes the third count.

it is necessary to refer back to the table and read it backwards. Furthermore, in obtaining the numerator, although the method is clear, there is room for a good deal of latitude of interpretation that is left to the judgment of the interpreter, which would lead to confusion and many disputes in a series of interpretations made by different workers.

This method also does not take into consideration several pattern groupings found in a relatively large percentage of palms. In fact one very common configuration is not mentioned at all by the authors of this method to say nothing of several others which occur less frequently, but often enough to necessitate their inclusion in a classification method.

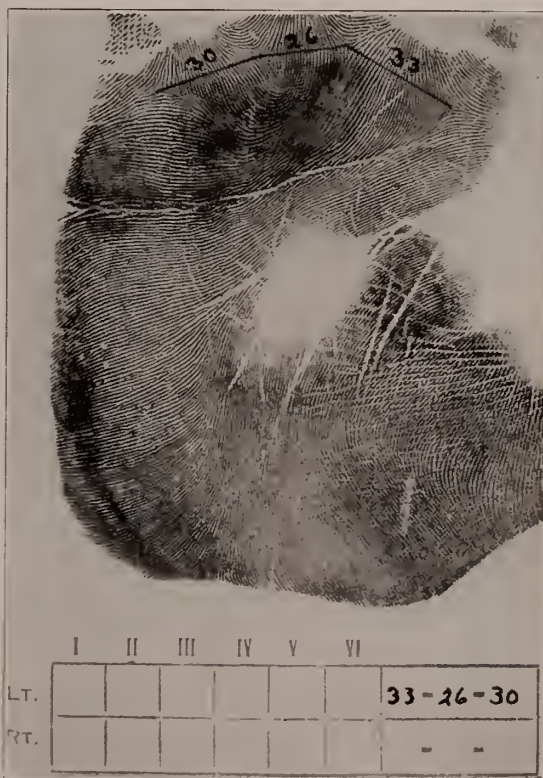
This criticism is not intended as a criticism of the method as an aid to morphological study,



	I	II	III	IV	V	VI
LT.						13 - 0 - 32
RT.						- -

Fig. 21.

In the accompanying print the third delta is not only missing, but there are no patterns at all. When the third delta is missing no patterns can occur in either the second or third areas.



	I	II	III	IV	V	VI
LT.						33 - 26 - 30
RT.						- -

#### Ridge Counts

Fig. 20. The second part of the classification is made by counting the number of papillary ridges occurring between the four deltas. This gives three numbers which are read in order from index delta to little finger delta, (first to fourth deltas). These numbers are placed in the classification bracket after the letters which describe the patterns.



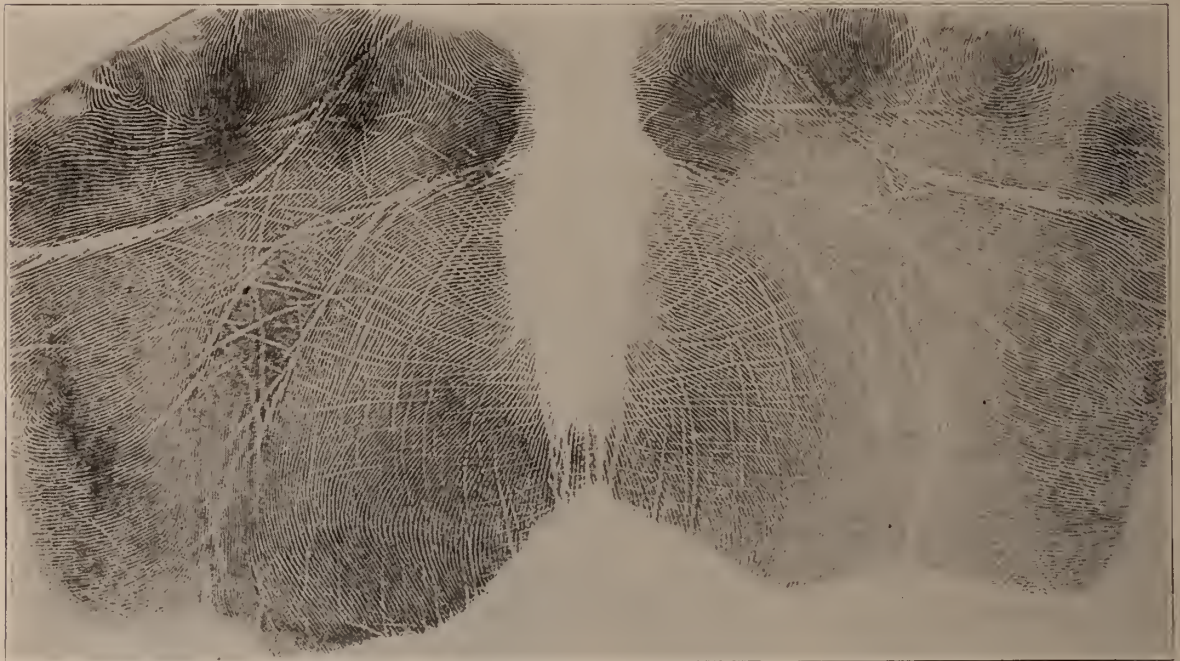
but is intended as a criticism of the method as to its adaptability to hospital routine.

In spite of a discouraging outlook infant palm prints were attempted with such gratifying results that in October, 1932, work was begun on perfecting a printing technique and the devising of a new classification.

The principal difficulties encountered were in holding the tiny palm open and flat for printing

before the vernix is dry is usually sufficient to remove it, but if the vernix adheres or is dry hydrogen peroxide will remove it harmlessly. Grease may be removed with benzine. If the ridges are swollen or water-logged, sponging with alcohol after the peroxide dehydrates them and makes them stand out clearly.

In the beginning of this work many of the prints revealed the ridges as rows of dots rather



	I	II	III	IV	V	VI
LT.		A	L	P		40-36-33
RT.			L			42-36-36

Fig. 22. This figure illustrates a completely classified pair of palms.

The filing is done on the basis of the left hand, using the sixty-four primary combinations of occurrence of patterns as the sixty-four primary divisions of the file. Cards printed in black are for males and those in red for females.

A card 8 x 8 inches has been chosen as the most

and the removal of the vernix caseosa which tends to fill the grooves between the ridges thereby making a smudge instead of a clear cut print. A steady hand, a little ambidexterity and practice are all that are necessary for one operator to secure clear prints using printer's ink rolled out on a plate. Wiping the infant's palms with dry gauze within fifteen minutes after birth or

satisfactory because it allows two prints of each hand on one side and because it is the standard size for finger prints, therefore file cabinets can be bought ready made for that size.

Telegraphic report of a formula may be made without the bracket by using a zero in each space where no pattern occurs. The above classification formula would then read: Lt. OALPOO 40-36-33, Rt. OOLPOO 42-36-36.

than continuous lines and in others there were merely masses of dots without configuration. Montgomery noticed this same apparent lack of ridges in some of his sole prints and believed that it was not an error of technique but that the papillary ridges had not yet matured to form definite ridges. It has been found in this investigation that the apparent lack of ridges in

some cases is definitely an error of technique, and that the error rests in the improper and insufficient removal of the vernix caseosa. I have yet to find a case in which the ridges cannot be clearly printed after proper cleansing, except where there is extensive exfoliation.

Not only has it been possible to make clear prints of palms of all normal new born full term babies, but this investigator has secured clear and classifiable palm prints of infants born prematurely. One print has even been secured from a still-born fetus of four and a half months gestation in which fully developed papillary ridges forming a pattern can plainly be seen.

The technique of obtaining palm prints is simple and may be done by one operator. The infant is placed on its back on a table with its feet toward the operator. The infant's left arm is raised with palm up and the operator slips his right index finger under its four curled fingers while his remaining fingers are at the back of the infant's hand. The infant's fingers are straightened out by holding them between the operator's index and middle fingers and bent slightly backward. The thumb is then bent backward and is held between the operator's middle and ring fingers. This holds the infant hand open and steady and at the same time flattens out the palm unfolding the transverse creases. If longitudinal creases remain the infant fingers may easily be separated and held separate between the operator's index and middle fingers. In this position the palm may be cleansed and dried for printing.

The ink plate consists of a ply-wood board six or eight inches square with a handle attached to its back and a glass plate cemented to its front surface. Printer's or lithographer's ink is rolled out in a smooth layer on the glass. The ink film must be thin enough to read ordinary news print through it. If the ink film is too thick the grooves between the ridges will be filled with ink and a smudge will result.

The ink plate is applied face down upon the upturned infant's palm either with simple flat pressure or with a slight rolling motion from the heel of the hand to the base of the fingers.

To a second board, the size of the card to be used for recording the prints, which has a handle on the back but no glass, the print card is applied and held in place by rubber bands. The print board with card attached is then pressed

upon the infant palm in the same manner as the ink plate.

The right palm is then held in position for cleaning and printing by reversing the process. Most people, with a little practice, can develop enough ambidexterity to do this.

The prints should be made in the birthroom a few minutes after birth before either the infant or mother have left the birthroom or another infant or mother has been introduced into it. The prints of one or more fingers of each hand of the mother should be placed on the same card as the infant's palm prints. This will provide a permanent record of the infant and will connect it indisputably with the mother.

The printing should be delegated to the supervising nurse staff of the obstetrical department, who may become adept and proficient, and not to pupil nurses or interns who are periodically entering and leaving the department.

The devising of a classification of palm patterns fulfilling the standards laid down required a thorough basic knowledge of fingerprint classification, an abundance of imagination, and infinite patience. It was deemed entirely possible for such a method to become national or even international in scope, hence the classification was planned to be workable for a number of prints equal to the population of any civilized nation. The classification herein proposed is adequate for well over three hundred million prints. The method used for fingerprints generally is adequate for about one hundred and sixty million.

This classification is admittedly based upon the experience of fifty years of scientific fingerprint classification with the use of fingerprint terms where they may rationally be applied to the palms.

Twelve hundred and fifty pairs of adult palm prints were collected and studied from which the classification was evolved. At the same time five hundred pairs of new born infant palm prints were collected, classified, and filed.

A ten per cent. check of the accurateness of the method was made by a second operator making fifty prints at random from the five hundred infants. These unnamed prints bearing key numbers were held until the five hundred were classified. The unknowns were then classified and identified out of the five hundred without a



single mistake and the average time for identifying an unknown was less than ten minutes.

The classification is based upon the occurrence of patterns in six definite areas of the palm. These areas are where walking pads occur in lower animals. Wilder has shown that when primates became arboreal they needed friction surfaces instead of pads so papillary or friction ridges developed and the pads evolved into ridge patterns. In the lower simians there are identical patterns in the form of whorls in all six areas. In the higher apes and man where arborealism has largely disappeared the patterns have degenerated into various forms or have disappeared entirely. The average number of patterns to a palm in man are between two and three. Five patterns on one palm is the highest number I have observed while several palms with no patterns at all have been seen.

With six areas where patterns may or may not occur there are sixty-four possible primary combinations without regard to the types of patterns. There are ten basic types of patterns half of which may occur in any area, the remainder being peculiar to their own areas. This raises the possible secondary combinations well into the millions.

In addition to the patterns there are four fixed points called deltas which are found at the base of each finger with one exception and between them there are varying numbers of papillary ridges. The count of the ridges between adjacent deltas give three numbers which form the tertiary or fine divisions raising the possible combinations well over three hundred million.

For hospitals with a birth expectancy of less than fifty thousand in a generation the first two divisions without the ridge count would be adequate unless the method became universal. This might be designated as the short classification.

The recording of the classification is accomplished by placing a letter designating the type of pattern in a space in a bracket corresponding to the area of the palm followed by the ridge count numbers. This visualizes the palm at a glance which is a great aid in the search for an unknown.

In devising this classification it has been necessary to arbitrarily set certain standards or rules in order that there may be uniformity of purpose regardless of who makes the classification of a certain print. This is imperative to

the success of the method and the avoidance of confusion, so I have compiled a set of descriptive rules, illustrated with actual prints and drawings, which constitutes the basic authority for the method.

*Summary.* All available literature on infant identification has been reviewed with special reference to footprints, and the latter have been found inadequate.

A technique for printing new born infant palms has been perfected and an entirely new classification of palm prints has been devised for the purpose of establishing a standard method of positive and permanent identification of the new born infant for general use.

#### CONCLUSIONS

The more one delves into this problem the more one is impressed with the possibilities and the far reaching effect of such a method.

If this method were generally adopted;

It would provide an incontrovertible proof of birth for the life of the individual and all persons would carry the proof of birth and of their identity with them at all times in the prints of their palms.

It would protect hospitals and parents against the possible mixing of new born infants.

It would provide a means of identifying abandoned children and foundlings and would consequently deter abandonment.

It would provide a means of identifying returned kidnaped children, regardless of time, either dead or alive.

It would provide a means of identifying unclaimed children after major disasters such as the San Francisco earthquake or Iroquois Theatre fire where thousands were unidentifiable.

It would provide a means of identifying all unknown dead after a generation of prints were on file.

It would preserve the identity of all children during the first years of life when the possibility of loss of identity is the greatest.

It would provide a record of relationship between the infant and its mother.

It would disprove false claims of parenthood of a given infant.

It would eventually be as acceptable in courts of law as finger prints are at the present time.

It would be devoid of the odium popularly attached to fingerprints.

In short it would provide a "birth certificate" par excellence.

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### DISCUSSION

Dr. Fred H. Falls: I do not think that a paper like this should go without discussion. I think identifying babies by means of footprints has been very disappointing. Some years ago we tried to mix up 100 sets of footprints and then unscramble them and we found it could not be done.

Since we have not had any experience with Dr. Pond's method, we have to take his word for the findings. I think that considering the analogous work the government has done with fingerprinting, such a method as Dr. Pond has described is practical. I think we ought to take it up immediately and see if we can have the same success as has attended his efforts. It is a very important thing to find out whether this is practicable or not. We are indebted to Dr. Pond for presenting this work.

Dr. David Hillis: It is of course true that the taking of footprints is nothing but a pleasant gesture without any value for identification but which gives the patient a souvenir of an important event in her life. It seems to me that a plan of this kind is most excellent. It is more accurate and dependable than any other which has been proposed.

I would like to ask Dr. Pond if, when such a plan is adopted, a hospital could simply take good palm prints, file them with the records without classifying them and depend upon some of its people familiar with this work to pass on them in cases of doubtful identity. In other words it would be necessary for each hospital to train someone to read palm prints intelligently in order to use the method. I cannot see why any hospital today that is using the footprint method should not adopt this plan which would not involve any additional cost and would really be of great value.

Dr. Gilbert P. Pond (closing): The printing of the palms is exceedingly simple. It is more simple than printing the foot. As I have seen footprints made, one nurse would hold the baby and another nurse would put the foot on the ink plate and then on the card; instead of putting the baby's foot on the ink and card, I put the card on the baby. The baby lies before me on the table with feet towards me. I lift the hand, take the ink plate, place it on the baby's palm, lay that down and put the card on the palm.

The card is held on the board by rubber bands. It is very simple and very easy to do. One operator can print ten babies in 15 or 20 minutes. I have done it many, many times and I have taught nurses to make the prints. At our hospital the supervising nurses are making these prints on every baby born there.

It is possible to make these prints and file them away without classifying them. They are far better than footprints as they are taken now because any fingerprint expert could definitely identify an unknown print from a group of prints in the hospital. If, for instance, there was a mix up and you knew this baby had one of two names it would be very simple to identify the baby positively in a very few minutes and a fingerprint expert could do it in a very short time. I know these palm prints will be accepted in court because the courts in Nevada had accepted a print of the palm as evidence the same as they would accept fingerprints. The judge said anyone who had specialized in papillary ridges could qualify as an expert in any ridge bearing surface. The principal reason for classifying is to be a help to the community in general. Take the case of a kidnapped child; there would be no question whatever of the identity of children brought in as to whether the desired child had been found or not.

### VINYL ETHER OBSTETRIC ANESTHESIA FOR GENERAL PRACTICE

Wesley Bourne, Montreal (*Journal A. M. A.*, Dec. 21, 1935), points out that since the more extended employment of vinyl ether in his clinic there has been no question of untoward effects; its entire suitability for use in obstetrics has become very convincing, and although those patients who have had it by the "open" method have done well enough, there can be no doubt that it is better to administer vinyl ether with oxygen, if for no other reason than that every anesthetist knows something of the benefits of adding oxygen to anesthetic vapors. The extreme volatility of vinyl ether is such that it is very wasteful to give it by the "open" method. It is therefore preferable to employ a closed-system apparatus, fitted for supplying oxygen and for absorbing carbon dioxide, so that a very small quantity of anesthetic will suffice for the longest case; in other words, the longer the anesthesia the smaller will be the quantity used per unit of time. Such an apparatus should be cheap and should in a short time more than pay for itself by precluding waste of material. The author concludes that when vinyl ether is used to produce anesthesia sufficient for obstetric procedures, it apparently does not cause liver damage nor does it interfere with muscular activity in the intestine and in the uterus. Vinyl ether seems to be particularly suitable for obstetric anesthesia in general practice on account of its safety for mother and child, its ease of administration, the rapidity of its action, the satisfactory maintenance of any desired degree of narcosis, and the early uneventful recovery.



## SIMPLICITY VERSUS COMPLICATED METHODS IN THE RECONSTRUCTION OF PENDULOUS BREASTS

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### CHICAGO

Unfortunately, the term "plastic surgery" was forced by quacks into disrepute in the ranks of ethical surgeons, for a number of decades. The thought is stimulating, however, that on the European continent, serious minded surgeons, through an educational campaign, encouraged research and enlightenment in this direction. In this country, the Society of Plastic and Reconstructive Surgery and the creation of chairs for the teaching of plastic surgery in various universities has done much to develop this branch of surgical endeavor.

A bird's-eye view of the history of this phase of surgical work may not be amiss in this connection.

Durston was first to describe, in 1669, the clinical entity now known as hypertrophy of the breast and mastoptosis. Nearly a century of silence prevailed in the literature until Velpeau in 1857 and Labarque contemporaneously studied the subject anew. In 1898 Michel and Pousson excised the upper half of the breast, making a half-moon shaped excision, beginning at the axilla and extending to the sternum in a case of double hypertrophy of the breast in a young woman. Verchère followed suit in 1898 but excised a lateral triangular section of the breast. In 1907 Morestin resorted to discoid resections of the hypertrophied or ptosed breast. In the following year Dehner excised an ellipse of skin in the upper half of the breast and suspended the gland to the periosteum of the third rib after splitting the pectoralis major and minor muscles. In 1909 Girard described the submammary incision already reported in 1903 by Guinard and which Gaillard Thomas used for the purpose of removing tumors as early as 1882. Girard suspended the breast on the costal cartilage of the second rib. Villandre was first, in 1911, to transpose the nipple, through a button-hole opening into a higher position; this method

was later practised and described by Passot and Dufourmental. In 1912 Lexer resected the hypertrophied breasts and sacrificed the nipples. Kausch, in 1916, endeavored by circular resection to remedy hypertrophic conditions of the breasts.

In April, 1921, I reported my experiences and results in free transplantation of the nipple and areola supplemented by resection of the hypertrophied breasts, before the North Shore branch of the Chicago Medical Society and published a paper on the subject in November of 1922.<sup>1</sup> In 1923 Lotsch reported that he elevated and resected the breasts through a longitudinal "slit incision" above and below the mammilla. In 1924 Hollender combined the methods of Pousson and Verchère. In 1925 (March 11) Passot, and on March 25 of the same year, Dufourmental reported on the subcutaneous transposition of the nipple. In 1925 Joseph published his case of mastomiopey which he performed in 1922 by double wedge-shaped excisions of the breast with the retention of a bridge of skin to insure nutrition to the nipple. In the same year Lexer and Kraske, and in 1926 Axhausen, described plastic resections of the hypertrophied breasts.

In 1927 Joseph described his two-stage, and later in the same year, his three stage operation. In 1928 Biesenberger published his plastic operation with surgical torsion of the breast and in 1930 Schwarzman elaborated on the Joseph technic.

Erna Glässmer of Heidelberg resected, in 1930, lateral and supramammary sections of skin and breast tissue and thus endeavored to diminish the size of the breast and accomplish its elevation.

Dartigues, Claué and others added refinements of technic of some type or another.

I have pointed out the possibility and feasibility of completely disconnecting the nipple and its areola from its subjacent bed and successfully transplant them to a new position selected at the proper level of the breast, at the same time reshaping the organ to its natural contour, following resection of excessive mammary tissue. With proper technic, such ablation and free transplantation of the nipple aiming at careful avoidance of injury to the highly specialized tissues of the nipple, necrosis may be avoided and satisfactory vascularization and taking of the nipple anticipated with confidence.

<sup>1</sup>Read before the Society of Plastic and Reconstructive Surgery at Atlantic City, N. J., June 15, 1935.

The technic of this operation may briefly be described as consisting of

(a) a supra-areolar convex incision over the anterior hypertrophied and pendulous gland with a second, similarly directed incision beneath the global mass; (b) removing between these incisions as much of glandular and adipose tissue



Fig. 1. Transplantation of the nipple. Low power magnification. The nipple structure is intact. Round cell infiltration in the immediate vicinity. There is one isolated area of an epithelial nest of cells; (X) the result of introducing microscopic portions from the skin during the operation.

as is deemed necessary to obtain the desired size and contour; (c) free circular detachment of the nipple and areola through a circular superficial incision. The subdermal tissues of the nipple must be treated with utmost gentleness. Transplantation of the nipple is then made into a bed prepared at the site previously selected.

Surgical artistry and special technical skill are requisite for these procedures if one's aim is to obtain a well formed new breast-contour and to avoid unsightly lumps and disfiguring scars.

In the great majority of my cases thus treated there was clinical evidence of good cosmetic result and there was no doubt regarding the viability of the freely transplanted tissue. However, it was not until recently that I had the opportunity of obtaining complete histological verification of this statement.

In 1930, a woman on whom I had executed a plastic operation on the breasts, including nipple transplantation, again came under my care two months later. With the patient's consent a small

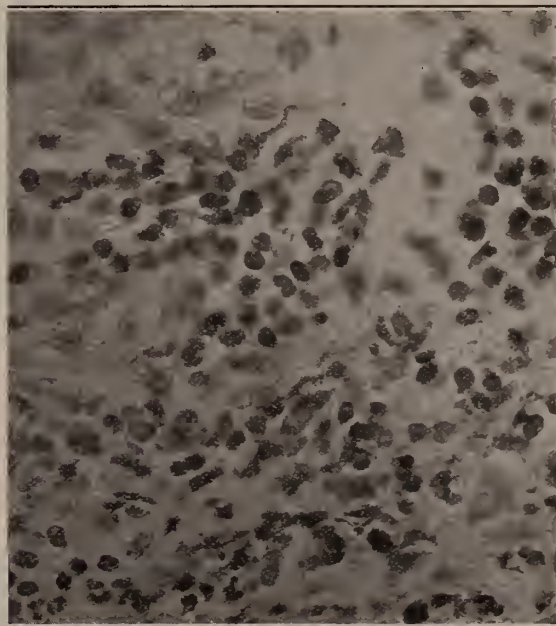


Fig. 2. Transplantation of the nipple. High power magnification of Fig. 1. The cells are intact in the skin of the nipple as are those in immediate contiguity. Round cells, a few polymorphonuclears and some plasma cells are seen.

section of the transplanted nipple was removed for biopsy, which gave the following result:

The epithelium was found intact and the corium containing round cells with few polymorphonuclears and some plasma cells. As is seen in Fig. 1, there is an isolated islet of epithelial cells. This is in all probability due to the implantation of some epithelial cells, the result of pinching off of these cells during the process of operative transplantation.

Following the acute reactionary process, the process transgresses into the subacute phase as is evidenced by some polymorphonuclear and a more extensive round cell infiltration (Fig. 2). When this area is examined under high power one observes the epithelial strata intact and immediately below this area, in the corium, there



are some round cells, plasma cells and some scattered polymorphonuclear leucocytes. This is seen to even greater advantage when a higher powered magnification of the corium is examined (Fig. 3). Here, the cellular elements and

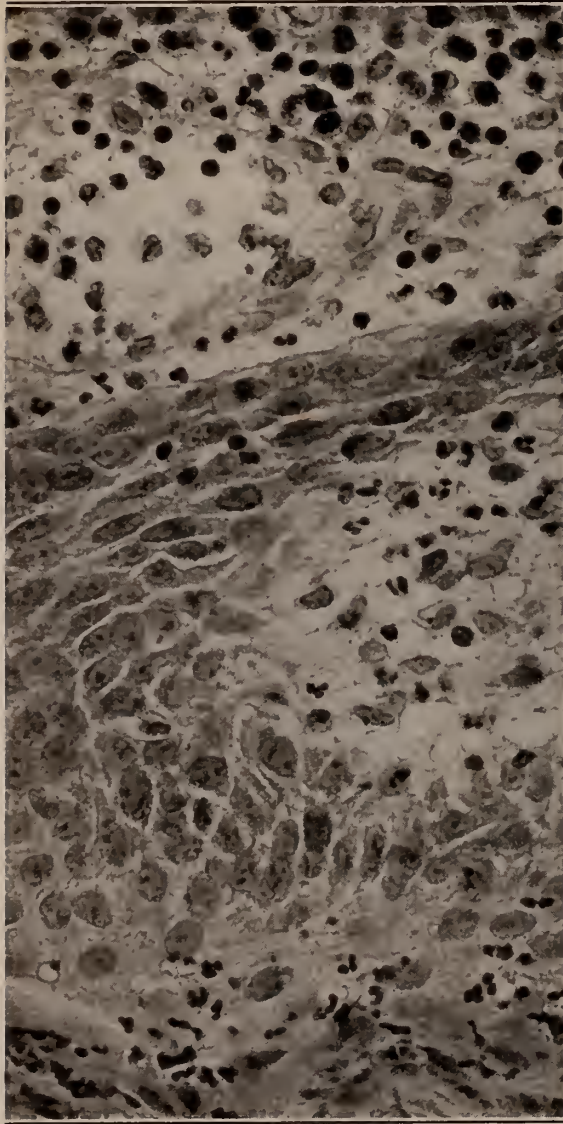


Fig. 3. Transplantation of the nipple. Higher magnification of the corium showing round cells, a few polymorphonuclears and some plasma cells.

the capillaries in the corium may be closely studied.

From these findings, it is quite evident that the transplanted nipple and areola have become vascularized and incorporated in the new site, as normal, living tissue. They further show that the operation of resection of superfluous tissue in hypertrophied pendulous female breasts, with

free transplantation of the nipple and areola, is a practical one, and that, when carried out with proper technic, the result will not only be relief of the patient's disability, but also satisfactory from the esthetic point of view and of permanency. The transplanted nipple does not become absorbed nor die, but continues as normal, vascularized, living tissue in the vast majority of cases (Figs. 4-10 incl.).

In a properly performed operation, as I have outlined, the surgeon must not conclude if after a few days following the transplantation of the nipple the surface of the latter appears dark to even black in color. It does *not* signify failure of the nipple to take. On the contrary, in most, if not all, of the cases *where the technic has been faultless* and the postoperative care proper, the superficial discolored layer representing only the stratum corneum exfoliates, while the cutis vera goes on healing per primam. Figure 11 depicts the beginning of the separation of the horny layer of the skin, while Fig. 12 shows the same transplanted nipple after healing is complete. They are from the patient shown in Figs. 9 and 10. It may take from 4 to 7 weeks for the stratum corneum to separate. This, however, does in no manner hinder the patient from pursuing her usual vocation. The keynote to the postoperative treatment consists of dry asepsis (desiccating powder and sterile supportive dressings). See also Fig. 12a.

Patients seek relief from these disabling conditions (Fig. 13) which interferes with their earning a livelihood, some even developing psychoses from brooding over their disability (Figs. 14 and 15). In others where the condition is less pronounced (Figs. 16-19) esthetic and vocational reasons, force the patients to seek surgical relief.

Careful individualization and planning of the operation are necessary to obtain anticipated results although a great deal depends on the experience and skill of the surgeon as well as the cooperation of the patient in the pre- and postoperative care. While many successful cases are reported at the hands of the experienced operator, numerous unrecorded failures are attributed to surgeons engaged in plastic surgery. *One must ever be mindful that lack of knowledge of the subject, improperly selected cases, inadequate pre- and postoperative care may result in sloughing, abscess formation and even loss of life.*

A survey of the literature furnishes ample material to force the conclusion that the great multiplicity of operations suggested for the correction of other complicated procedures, capable of yielding good results in the hands of the originators of the respective method create a chaotic situa-



Fig. 4. Virginal hypertrophy of the breasts.

Fig. 5. Virginal hypertrophy of the breasts. Same patient one week after plastic resection with transplantation of the nipple.

Fig. 6. Virginal hypertrophy of the breasts. Same patient four weeks after operation.

resection of hyperplastic breasts has thus far failed to yield a standard technic. Complicated procedures such as transpositions of the nipple

tion, eventuating in perplexity to the surgeon who asks "Which is the simplest method giving uniformly good results?"



Fig. 7. Marked pendulosity of the breasts (vocational disability; eczema under breasts).



Fig. 8. Same patient after operation.



Fig. 9. Pendulous hypertrophy of the breasts in young woman.

(Fig. 20), two, three, and even four stage operations, partial resection with axial torsion of the remaining mammary substance and numerous

After a number of years of experience with most of the methods advocated, I conclude that good results are obtainable and depend upon the



simplest possible technic, meticulous asepsis, a thorough knowledge of anatomy and assiduous attention to detail.



Fig. 10. Same as preceding—about one month after operation.



Fig. 11. Beginning separation of the stratum corneum of the skin revealing the healed nipple underneath.

*Distressing effects of hypertrophy of the breasts* may be grouped as follows:

- (a) Physical manifestations.
- (b) Vocational incapacity.
- (c) Esthetic drawbacks.
- (d) Psychic influences.
- (a) *Physical Manifestations.* The excessive



Fig. 12. Same as preceding case. Observe completely healed, transplanted nipple after separation of the superficial layers of skin.

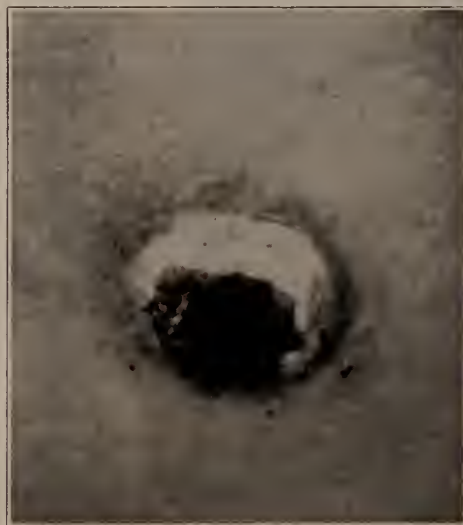


Fig. 12a. Close up of transplanted nipple five weeks after operation showing stratum corneum separating leaving the healed nipple structure united to the breast.

size of the breast may cause considerable discomfort (pulling, dragging sensations intensified at the menstrual period) referred to as *masto-*

*dynia* by Girard. Circulatory disturbances have been described by Velpeau and in our times by Kraske (edema, discoloration, even ulcerations). Intertriginous eczema is not infrequently encoun-

in aggravated cases lead to a greater or lesser degree of kyphosis.

(b) *Vocational Incapacity.* In this group belong dancers, public speakers and people of the



Fig. 13. Excessive hypertrophy of the breasts causing vocational disability.

tered, particularly in hot weather (crustation, inflammatory manifestations). Some authors (Axhausen) believe that markedly pendulous breasts are followed by untoward influences on the heart and lungs. The dragging breasts cause alterations in the vertebral column which may



Fig. 15. Patient shown in Fig. 14 following operation. Recovery.



Fig. 14. Psychosis developing in a patient—the result of brooding over pendulous breasts.



Fig. 16. Asymmetry of the breasts before operation.

stage and manikin models (so important a vocation in modern times).

(c) *Esthetic Drawbacks.* Women of refined esthetic tastes are superconscious of pendulous



breasts. A great drawback is created for those engaged in various outdoor athletic endeavors, swimming, tennis, etc.

(d) *Psychic Influences.* Conditions of inferiority, neuroses and psychoses may develop. Ten-

A rather exhaustive study of the more or less complicated methods of Lotsch, Eckstein, Weinhold, Kausch, Lexer-Kraske, Hollander, Joseph and particularly that of Biesenberger has convinced me it is best to abandon procedures which



Fig. 17. Same patient as preceding 6 weeks after resection-suspension of the breast. Arrow points to semi-lunar scar partially obscured by powder.



Fig. 19. Patient shown in preceding illustration six weeks after resection-suspension operation. Arrow points to crescentic supramammary incisions.



Fig. 18. Pendulous breasts. Vocational disability (professional model).

dencies to suicide and actual attempts at self-destruction have been reported (Axhausen).

are difficult to perform and offer greater possibilities of failures than the simple method of resection of the breast with free transplantation of the nipple.

#### SUMMARY

1. Patients often seek relief from excessively hypertrophied breasts and the train of symptoms accompanying the condition.
2. Surgeons desiring to relieve these patients should acquaint themselves thoroughly with the anatomicopathologic factors underlying the abnormality and the methods for their relief.
3. Good results usually follow properly executed operations but it must be remembered that amateur attempts at breast plastic have been followed by necrosis of the nipple; necrosis of the breast tissue and suppurative conditions and their sequelae.
4. The simpler the technic the better the results.
5. Patients should be told that with transplantation of the nipple lactation is precluded.

6. When the pendulosity is moderate a transposition operation may be carried out successfully.

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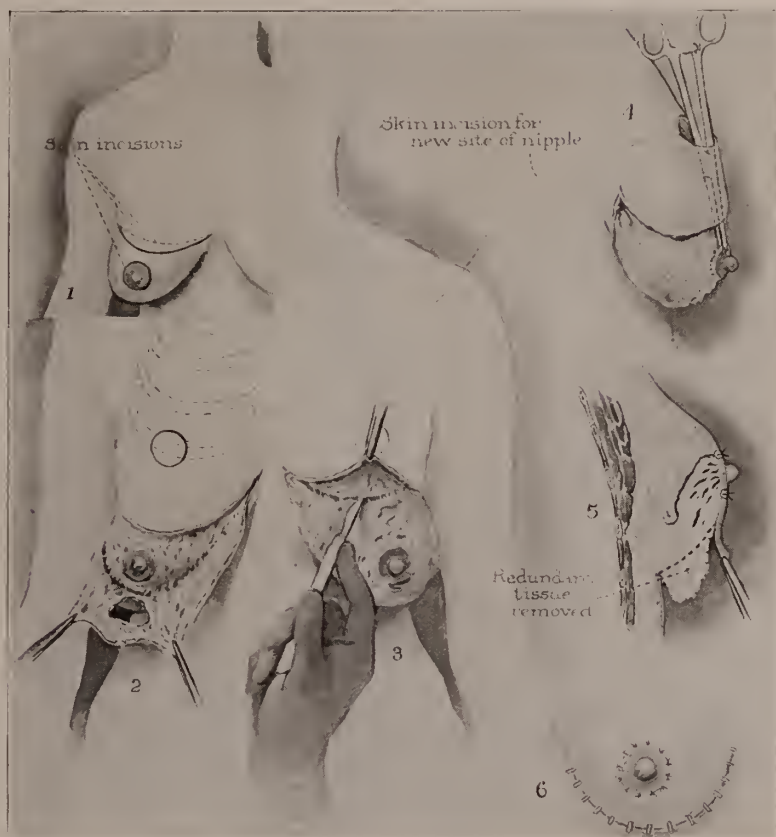


Fig. 20. Transposition of nipple with resection of the breast. Two stage operation.

## THE ROLE OF RADIATION IN THE MANAGEMENT OF CARCINOMA OF THE BREAST

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At the present time there are approximately 500,000 people suffering from cancer in the United States, and there are about 150,000 deaths from cancer each year. Last year in the state of Illinois alone there were approximately 10,000 deaths from malignancy of the various organs. During the past twenty-five years there has been an increase of about 100% in the reported mortality. A disease as prevalent as cancer and responsible for such a high death rate naturally makes up a large part of our medical literature and discussion, but with all this, very few actual facts are known and there is little that is defi-

nately accepted with reference to any phase of the problem.

So far as etiology is concerned, we know that heredity plays but a minor role. Trauma is also an insignificant factor. Chronic inflammation, long standing irritation, and malignant changes in a benign neoplasm are occasionally seen as underlying etiological factors, but in the general scope of the subject fail to explain the great majority of malignant growths. The explanation that cancer begins as an explosive, wild, uncontrollable growth in a single cell and spreads to involve other cells with the formation of a visible, palpable tumor which metastasizes and causes death, also leaves unknown just why, when, and how such a process can take place.

With reference to carcinoma of the breast, if we leave the question of etiology we also find much disagreement as to nomenclature and clin-



ical course. Thus we find clinical classifications based upon the extent of the disease as well as classifications based upon cellular structure though this may vary greatly in any given tumor mass. In some types of breast tumor many different terms are applied to the same pathological entity by pathologists in different clinics. Thus we find ourselves greatly confused with such terms as chronic cystic mastitis, Schimmelbusch's disease, mazoplasia, cystipherous desquamative epithelial hyperplasia, senile parenchymatous hypertrophy, etc., all probably phases of the same underlying pathological change.

So far as treatment is concerned, we are all agreed that at the present time there are only two methods of proved value, surgery and radiation. It would seem that this is so simple that little more need be said, but one might suspect that in a disease where so little is known of the etiology and pathology we might also find much disagreement as to treatment. As an example of the widespread confusion that exists, I should like to quote informally the proceedings of a symposium on carcinoma of the breast at a meeting of the Chicago Medical Society about a year ago.

From the pathological view, McCarthy stated that it mattered little what type of malignancy was present; from the practical point of view the important thing was the size of the lesion, the smaller lesion offering the best prognosis. Jaffé stated that any palpable mass regardless of size was already an advanced malignancy, that cellular type was all important and size meant relatively little. From the surgical point of view, Bevan emphasized the importance of the proper selection of the incision and illustrated with lantern slides certain types of ideal incision. McNealy felt, however, that the incision was only of importance in closing the wound and stated that many of the incisions illustrated by Bevan were impractical in that they left behind the axillary skin which frequently bears metastases. As to the value of radiation, Oliver felt that in his experience radiation was worthless, Crile felt that radiation was of value only in recurrences, Thompson felt that in his experience radiation was of no value and actually exaggerated the growth of many carcinomata, and Jenkinson presented statistics to prove that radiation adequately given increases the five year cures by about 15%.

Such confusion with reference to the treatment of carcinoma of the breast justifies an examination of the facts in an effort to determine why such differences of opinion exist and what might be done to perhaps classify and choose our cases more intelligently for the various methods of treatment. With reference to carcinoma of the

cervix uteri; the skin, the larynx, most lip and tongue cancers, the relative value of surgery and radiation is well understood. In these malignancies surgeons and radiologists are fairly well agreed upon the choice of treatment, especially in those cases of questionable operability. We cannot help but be impressed by the fact that where the radiologist has been given the opportunity to treat cancer in anything but the hopeless stages of the disease, he has been able to improve upon the number of clinical cures and without any reservation whatever we can say that where a cooperative relationship exists between the surgeon and the radiologist the results are far superior than when either one of these specialists gets the notion that the efforts of the other are worthless.

To begin with, I believe we must recognize that with all of our present methods of treatment and with whatever combination of these methods we may choose to use, the end results in the treatment of carcinoma of the breast are anything but encouraging. Whether we favor radical surgery alone or surgery combined with radiation the percentage of cures is nothing to become enthusiastic about. In a large measure this is due to the fact that an early diagnosis is unusual in most cases, largely because the patient comes to the physician relatively late. Portmann recently stated that about 80% of all patients coming to operation have axillary node involvement and Sampson-Handley states that about 70% of all patients have intrathoracic involvement when they first present themselves for treatment. Furthermore, before consideration is given any form of treatment we must appraise the results in a series of untreated cases. Portmann states that the average duration of life is 34 months where no treatment is instituted. A similar series of cases from the Radiumhemmet indicates that the average length of life in untreated cases is about three years. We fully realize, however, that the patient with carcinoma of the breast who is treated surgically with or without radiation, is much more comfortable, suffers less pain, lives longer, and is greatly encouraged in the thought that everything possible is being done to effect a cure.

The surgical treatment of carcinoma of the breast has been well standardized, and today the technic for radical amputation is subject only to minor and individual modifications. The sur-

vival rate is certainly not changed very materially by any particular modification. It has been estimated that there is about a 15% improvement in clinical cures since the introduction of the radical amputation. Observation of a small series of cases of the same type and extent in which simple mastectomy was done instead of the radical dissection has brought out the rather interesting fact that the survival rate is about the same as in the series where a radical amputation was performed. The cosmetic result, swelling of the arm, pain, etc., are, on the other hand, much less marked following simple mastectomy. It would be interesting if more statistics could be accumulated with reference to the relative merits of the two operations in cases of the same type histologically and of the same extent clinically. The statistics gathered from several sources indicate that about 70% of the so-called early cases where there are no demonstrable metastases survive five years; of those in which there are palpable axillary glands only about 15% survive five years. Lane-Claypons' world statistics showed that of the cases coming for treatment a clinical classification could be made which showed that only 31.7% had no skin or axillary metastases, 51% had axillary involvement, and 17.3% presented an adherent tumor with skin and axillary metastases. Of the first group only 50.4% survived three years or more, of the second group 20.5% survived three years or more, and of the last group 9.7% were alive for more than three years. After a ten-year period nearly all were dead of carcinoma.

With these statistics at his disposal the surgeon rightfully undertakes to treat all cases without demonstrable metastases. Usually, he also accepts those cases in which only axillary metastases which are not fixed complicate the primary growth. He should and usually does refer the far advanced cases with distant metastases, large ulcerating masses and inflammatory carcinomata to the radiologist for palliation, realizing that surgery has nothing to offer in these types of cancer. Finally, Dean Lewis concludes that while the results from any method of treatment may seem encouraging for a time, nearly all the cases die of cancer ultimately.

Generally speaking, therefore, the indications for surgery in carcinoma of the breast should be well established and accepted, but when we try to establish the indications for radiation we are

again enmeshed in a net of complicating, confusing and contradictory statistics, and we are confronted with reports from enthusiastic radiologists who, based upon a series of a few cases, would lead us to believe that the results obtained with radiation in carcinoma of the breast are so good as to be superior to those obtained with surgery and that within a short time radiation will supplant surgery in the treatment of breast carcinoma. On the other hand, statistics from the surgical centers based upon unclassified cases or cases so far advanced that no effect was noted after irradiation are frequently published and show that radiation is useless or even "aggravates the growth." An analysis of the facts, however, shows that radiation does not supplant surgery in the treatment of operable cases nor is there any worth-while evidence to prove that radiation is useless or harmful.

It is bold to suggest that radiation should be the sole therapeutic agent in an early operable carcinoma of the breast. Certainly with the statistics and data at hand, I as a radiologist would not be inclined to such a view. Yet Douglas Quick reports a small series of cases where for one reason or another surgery was refused and radiation alone was used. He reports one case alive and well after fourteen years, and a few cases well after six and seven years. British radiologists especially have contributed favorable reports. Keynes, Souttar, and others limiting themselves almost exclusively to the use of radium have emphasized the value of radiation alone in breast cancer. While radiation may be justifiable as the sole therapeutic agent in an early case under certain unusual circumstances, I believe that with our present knowledge of the subject the field for radiation is almost exclusively as an adjunct to the surgical treatment and as a palliative measure in the inoperable cases.

A wide difference of opinion exists as to the value of pre- and postoperative radiation. Most radiologists favor it because of the results obtained in the general run of cases. Many surgeons think little of it because in their own selection of cases for radiation the results have not been startling. For the proper evaluation of radiation it is obviously necessary to group the cases treated. If a surgeon will refer only the far advanced cases upon which he has attempted some type of surgery, he surely cannot expect much from radiation. Often the surgeon faced



with an advanced case of breast carcinoma attempts surgery and refers the case to the radiologist for further treatment, with the assurance to the patient or the relatives that the x-ray treatments will destroy all of the stray cells. Such cases always end in disaster. Furthermore, to determine the proper value of radiation, it is necessary to know the difference in the clinical course of carcinoma of the breast in a young woman as compared with a similar neoplasm in a woman of seventy. Whereas the former usually runs a rapid, fatal course, a similar growth in a patient past seventy is frequently so slow growing that the patient may live beyond her normal life expectancy without any treatment. One must also appreciate that a rapidly growing immature cell carcinoma has an entirely different course clinically than a slow growing scirrhus carcinoma. And finally, it is highly important that in any attempted evaluation of results the radiation delivered be adequate and properly administered. We have repeatedly seen cases greatly under-treated in terms of total dosage and in our experience it has been the rule to find that the patient has received a poor and improper distribution of the inadequate dose of radiation.

Generally speaking, the effect of properly administered pre-operative radiation is the production of regressive changes in the tumor, and the production of obliterative changes in the vascular and lymphatic trees which tend to diminish or prevent the spread of tumor emboli at the time of the operation. The objection to this type of radiation is that it delays the radical removal of the cancer bearing area for some period of time. With these facts in mind, it seems to me that in view of the excellent surgical results in an early case without demonstrable regional metastases it is not advisable to institute pre-operative radiation and wait for the effect before undertaking radical surgery. On the other hand, if there are axillary or other metastases the surgeon should consider the possible benefits of pre-operative radiation in view of the known poor surgical results in this type of case. Again, if the cellular structure of the tumor is known to be a rapidly growing, radio-sensitive type, intensive pre-operative radiation may prove very valuable. On the other hand, little good can be expected from waiting for the effects of pre-operative radiation if the patient has an early resistant scirrhus carcinoma.

Postoperative irradiation is used as an adjunct to radical surgery for the purpose of destroying tumor cells which may have been left behind in the skin and regional lymphatics. Obviously, in early cases where the tumor is well localized and there have been no regional metastases and where radical surgery has been performed, the clinical cures will not be materially increased in number by postoperative irradiation, but in those cases in which there are regional metastases there is a very material increase in three year cures if irradiation is instituted in addition to surgery. Combined statistics in this latter group of cases shows at least a 15% increase in three year cures.\* With reference to the cellular type of tumor, the relative value of postoperative radiation will again be dependent upon the radiosensitivity of the cell. Thus postoperative irradiation in immature cell tumors will definitely and very materially limit and prevent recurrences and increase the number of three year cures. In the slow growing, resistant, scirrhus carcinoma postoperative irradiation will affect the end-results relatively little.

If we recall that almost 70% of the cases when first seen have metastases and that in these cases surgery can save only about 15% for a period of from three to five years, I believe it is good judgment to institute intensive postoperative radiation in all cases. Where this plan has been adopted there has been about a 15% increase in the three year cures. Frankly, the remaining 85% will run their course apparently unaffected by the radiation given, but where a large number of patients are treated the difference in the end results makes the effort considerably worth while.

In the matter of recurrent breast carcinomata, far advanced fixed tumors, ulcerated carcinomas, etc., the surgeon and radiologist are well agreed that irradiation offers the best chance for palliation. Oftentimes the effects of properly administered irradiation are startling and very encouraging but in the majority of cases the best that can be hoped for is to keep the patient comfortable and hopeful.

For the large massive tumors we are using 200,000 volt x-ray therapy, sometimes in combination with interstitial radium radiation. For the discrete, recurrent nodules interstitial radium in the form of needles or seeds has proved very valuable in our hands.

A point of great importance before attempting any type of treatment is to determine the presence of distant metastases. We recall one patient who was receiving a course of intensive high voltage x-ray treatments directly over the involved breast with good results locally, but x-ray examination of the pelvis and spine showed the presence of destructive metastases to the sacrum and some of the vertebral bodies. Another patient was being treated with a radium bomb for the purpose of destroying a recurrent nodule in the rib. X-ray examination of the chest showed the presence of large nodular metastases in the mediastinum. Cases such as this suggest that as a routine procedure whenever possible a roentgenogram of the chest, lumbosacral spine, and pelvis should be made before attempting any type of therapy for the lesion locally or for a local recurrence.

In conclusion it is fully realized that nothing new has been added to the problem. An attempt has merely been made to present the various problems in the treatment of carcinoma of the breast and to determine the proper values for the various types of treatment. The confusion that exists as to the value of irradiation in this disease is the direct result of the failure of surgeons and radiologists to properly classify their cases. Statistical data is misleading at best but in the case of carcinoma of the breast any pre-determined idea can be proved or disproved by selecting a particular class of case. Therefore, the value of any form of treatment, radiation or otherwise, can be determined only by careful selection and grouping of cases.

#### CONCLUSIONS

Little is known of the etiology of breast cancer and much confusion exists in the matter of histological and clinical classification.

World statistics show that early diagnosis is unusual, and that the end-results from any of our present methods of treatment are very poor so far as any permanent cure is concerned. Three year and five year cures are not uncommon if the cases are treated early enough, but within a ten year period almost all proved cases of breast carcinoma are dead.

Surgery definitely offers the best chance of clinical cure in those cases where there are no regional metastases, and in our opinion the surgical management of this disease is the method of choice even in those cases where there are

demonstrable axillary metastases. We do not believe that radiation should be used as the primary therapeutic agent in either of these two types of cases except where there is some very definite constitutional contraindication for surgery.

Radiation should be used as the primary therapeutic procedure in breast carcinoma where there are extensive metastases in the skin, supraclavicular lymph glands or other local or accessible metastases.

The value of pre-operative radiation is very questionable except in very rapidly growing, immature cell type of growth. We believe postoperative radiation has some value and should be carried out in all cases, especially if physical examination or surgical dissection has revealed the presence of regional metastases.

Radium or x-radiation is of definite palliative value in the management of skin and regional recurrences.

In order to properly determine the clinical course and the value of any type of treatment it is necessary to select and study a group of cases of similar cellular type and anatomical extent in patients of about the same age and with the same constitutional make-up.

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## FREQUENCY OF SPECIFIC ALLERGIC REACTIONS

Report of Results in  
300 Consecutive Cases

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The term allergy has been defined as "a condition of unusual or exaggerated specific susceptibility to a substance which is harmless in similar amounts for the majority of members of the same species."

The number of conditions for which allergy is known to be wholly or in part responsible is being constantly augmented as knowledge of allergic reactions increases. The variety of protein foods, epidermics and pollens toward which a human being may display an idiosyncrasy or susceptibility is almost unlimited. In our routine tests we employ 400 individual protein preparations representative of the proteins ingested in a wide variety of foods, drugs and those elements



which might be unknowingly absorbed after inhalation.

We are often asked, "To what allergen or protein do people most often show a sensitivity?" Because of the frequency with which this question has been put to us, we determined to analyze our records in search of an answer. Three hundred case records were scrutinized and the results are tabulated in the charts below.

These patients were referred to our laboratory for allergy tests because of various possible allergic disturbances which they displayed, such as asthma, rhinitis, rheumatism, urticaria, eczema and migraine. After determining the allergic sensitivity and removing the offending allergens from the dietaries of sensitive patients, or by decreasing or eliminating the sensitivity through specific inoculations, the attending physicians report that about 80% of the cases were improved or cured.

In our work we use the patient's back for application of the test allergens as shown in Fig. 1. The various proteins are placed in horizontal



Showing Various Degrees of Reaction

and vertical rows, each far enough apart to avoid overlapping of the inflammatory zones when strongly positive reactions occur. By this method it is possible to test for sensitivity to about seventy proteins at one time.

We have found group testing unsatisfactory and, therefore, apply all allergens as individual

tests. Individual liquid extracts prepared by the Lederle Laboratories and individual paste forms supplied by Parke, Davis and Company have proved most satisfactory. These are kept in a specially constructed case, as shown in Fig. 2.



Specially Constructed Cases for Storing Allergens

The chart used for recording results of sensitivity tests is shown in Fig. 3.

A tabulation of the frequency of reaction to all of the 400 proteins used is not required to provide an answer to the question we set out to obtain. Therefore, the charts include only the forty proteins which showed frequency of sensitivity of more than 10% in our series. (Charts 1, 2, 3 and 4.)

The foregoing charts indicated the forty proteins which, in our series of 300 patients, displayed the greatest frequency of allergic reaction. Of these, thirty were food allergens, four were pollens, three were feathers, and three were miscellaneous proteins. In the entire series no food protein showed a constantly negative reaction; only one pollen (elm) was constantly negative; and three hair allergens (deer, hog and mule) were constantly negative. All other proteins used in testing gave positive reactions in one or more patients.

**Clinical Observations.** A few observations, gained from the histories of allergic patients, will serve to indicate the importance of recognizing allergy as an important factor in the care and treatment of many obscure conditions.

A woman patient was subjected to violent attacks of sneezing at certain times. The allergy tests showed that she was sensitive to fox fur. She gave her fur away and was thereafter free from her sneezing paroxysms.

A child was relieved of chronic eczema by

wearing stockings not made of silk after it was learned that she was sensitive to silk fabrics.

Another child, suffering from an almost constant fever of inexplicable origin, was put to bed and kept there for a whole year. The fever still persisted. Finally allergy tests indicated that the child had an idiosyncrasy for feathers. The feather pillow on which she always lay was removed and the fever disappeared immediately.

For over two years a boy of fifteen years had suffered from an almost continuous and violent headache. His physical examination was negative. His eyes were tested but glasses gave no relief. As a final gesture the doctor advised allergy tests. The patient was found to be sensitive to white potatoes, a favorite food. Potatoes were removed from his diet and within a week his headache had vanished. He is free from headaches as long as he remains away from white potatoes.

A most interesting story was that of a man who suffered from asthmatic attacks. He lived in New York and his firm thought so well of him that he was sent to Texas for possible relief. His asthmatic attacks immediately left him. Thereupon his employers created a new position for him in Texas and he sent for his family and belongings. Soon after this the asthma recurred as violently as ever. He then went to California alone and was again relieved. Encouraged, he sent for his family to make his home in California, but the asthma again recurred. The harrassed man next tried Arizona. The result was the same; relief was followed by recurrence of the asthma soon after his family joined him.

In the meantime this patient had been attended by many physicians. Skin tests for allergic susceptibility had been made and found negative, but he had never submitted to a *complete* series of tests. A complete series was applied to him in our laboratories. Among other reactions, he showed a strong sensitivity to cat's hair and, unfortunately, included in his belongings which came to him each time the family was moved, was a lovely Angora cat—the original cause of his asthma as well as all the recurrences.

*Comments.* 1. In our series, allergic reaction from foods were more frequent than from pollens and other materials.

2. An allergic person may be sensitive to chicken and chicken feathers at the same time, but only rarely to chicken and egg.

3. Mutton gave positive reactions in 52 patients in our series, while lamb reacted in only 30 patients.

4. Fowl, usually considered less harmful than meats as far as allergy is concerned, reacted positively in more instances than any of the meats. Chicken and turkey were the worst offenders.

5. Rice and orris root, which form the basis for many face powders, gave positive reactions in 54 and 40 cases respectively. One of our case histories is that of a male patient who entered his wife's dressing room as she was powdering her face and promptly developed an acute attack of asthma.

6. House dust reacted positive in 52 patients. Because of the frequency of this reaction we often have our patients bring in dust from their vacuum cleaners, extract some of it, and do patch tests, using the specific dust found in the patients' homes.

7. Ragweed was the most common offender of the pollen group.

8. Although the citrus fruits have of late been much condemned as allergy producers, the tomato was found guilty in 68 cases as compared with grapefruit, lemon and orange in 40, 41 and 47 instances respectively.

9. Mushrooms, a substance without food value, gave allergic reactions in 83 cases.

10. Tuna fish, a much used food, led the entire series with an incidence of 125 positive reactions. Anchovies ran second with a score of 92 and salmon was not far down the list with 80 positive reactions.

11. A tip to mothers who insist upon spinach for their children: 60 positive reactions to spinach were found in our series, and most of these occurred in children.

12. Positive reactions to feathers were particularly frequent in patients with asthma.

13. Silk gave the greatest number of reactions in the fabric group.

14. Occasionally it is noted that a person may be sensitive to a number of proteins but suffers no ill effects unless many of them are given an opportunity to act at the same time. Individually they exert no bad effect but collectively they do. This is illustrated in the case of one of our subjects, a young lady, who was sensitive to horse hair, cat hair, milk and pork. She rode frequently, ate pork when she chose,



and drank milk often without ill effects. But on a certain day she rode horseback, stopped en route for a ham sandwich and a glass of milk, and upon her return to the stables stopped to pet a cat. The result of this combination of events was a violent attack of urticaria and angioneurotic edema.

15. An analysis of the unrecorded reactions, those not listed among the first forty in frequency, lead to the following observations:

a. Bacteria did not react frequently, but the four patients who were sensitive to the gonococcus gave a history of having had gonorrhea, and patients with rheumatism were usually sensitive to the streptococcus.

b. Apples produced positive reactions in 43 instances, cheese in 55 and milk in only 20 instances.

c. Eggs, so frequently suspected of causing allergic reactions, were guilty only 24 times in our series.

d. Chocolate sensitivity occurred 17 times, cocoa sensitivity 24 times. Reactions to these two substances seldom occur together in the same individual.

While this series of 300 cases is too small to justify very definite conclusions, an analysis of the finding suggests that certain preconceived notions in regard to the frequency of allergic manifestations of certain proteins may require modification in the light of tabulated results.

636 Church Street.

CHART 1. FOODS SHOWING GREATEST FREQUENCY OF REACTION

Serial No.	Food Protein	Total Number of Positive Reactions	Percentage of Positive Reactions
1.	Tuna Fish .....	125	41.6
2.	Anchovies .....	92	30.6
3.	Carp .....	92	30.6
4.	Mushrooms .....	83	27.6
5.	Salmon .....	80	26.6
6.	Asparagus .....	69	23.0
7.	Tomato .....	68	22.6
8.	Spinach .....	60	20.0
9.	Red Pepper .....	59	19.6
10.	Chicken .....	57	19.0
11.	Crab .....	57	19.0
12.	Corn Meal .....	56	18.6
13.	Cheese .....	55	18.3
14.	Rice .....	54	18.0
15.	Navy Beans .....	53	17.6
16.	Peas .....	53	17.6
17.	Mutton .....	52	17.3
18.	Paprika .....	52	17.3
19.	Cauliflower .....	51	17.0
20.	Cabbage .....	50	16.6
21.	Orange .....	47	15.6
22.	Sweet Corn .....	46	15.3

23.	Beets .....	45	15.0
24.	Cucumber .....	44	14.6
25.	Apple .....	43	14.3
26.	Parsley .....	43	14.3
27.	Turkey .....	42	14.0
28.	Lemon .....	41	13.6
29.	White Potato .....	41	13.6
30.	Grapefruit .....	41	13.6

CHART 2. POLLENS SHOWING GREATEST FREQUENCY OF REACTION

Serial No.	Pollen Protein	Total Number of Positive Reactions	Percentage of Positive Reactions
31.	Giant Ragweed .....	57	19.0
32.	Common Ragweed .....	56	18.6
33.	Sunflower .....	42	14.0
34.	Southwestern Ragweed .....	40	13.3

CHART 3. EPIDERMALS SHOWING GREATEST FREQUENCY OF REACTION

Serial No.	Epidermal Protein	Total Number of Positive Reactions	Percentage of Positive Reactions
35.	Chicken Feathers .....	50	16.6
36.	Goose Feathers .....	42	14.0
37.	Duck Feathers .....	38	12.6

CHART 4. MISCELLANEOUS PROTEINS SHOWING GREATEST FREQUENCY OF REACTION

Serial No.	Miscellaneous Proteins	Total Number of Positive Reactions	Percentage of Positive Reactions
38.	Silk .....	31	10.3
39.	Housedust .....	52	17.3
40.	Orris Root .....	40	13.3

## EVIPAL-SODIUM ANESTHESIA

H. J. DOOLEY, M. D., F. A. C. S.

OAK PARK, ILL.

For years urologists have sought the ideal anesthetic for their investigative work. The pain and agony associated in the minds of the public with cystoscopy and other genitourinary procedures have kept many patients from having some necessary analysis until perhaps too late to be of benefit. Morphine, cocaine locally, nitrous oxide, ether and the various spinal anesthetics have been used with their consequent trouble, expense and dangers as well as postanesthetic restlessness, nausea, vomiting, and headache.

A new substance for intravenous use has recently been introduced which in my opinion has a big field of usefulness in all minor procedures requiring narcosis from ten to twenty-five minutes. Though my personal experience has been confined to cystoscopic and other urological procedures, I believe it could be used for all

minor operations such as fractures and dislocations, biopsy, removal of cysts of skin and breasts, curyettage, extraction of teeth, suture of traumatic lacerations, gynecological and other examinations causing pain and requiring relaxation, and in all conditions in which a short anesthetic only is desired.

This drug is called evipal-sodium, a barbiturate and chemically designed as N-methyl-cyclohexen-methyl-barbituric acid. It is a white crystalline powder readily soluble in water and should be freshly prepared shortly before use as it disintegrates soon after being exposed to the air. The usual adult dose is 0.5 gm. to 1. gm. administered in a 10% solution, an ampule of 10 c.c. of distilled water being supplied with each dose and in which the powder is dissolved. Its therapeutic or toxic index is spoken of as 4, that is, four times the average dose has been found fatal to lower animals. Although evipal is to be considered a non-controllable anesthetic because of its non-volatile character, it is detoxicated so quickly that it approaches very closely to the controllable type of anesthetic agents. It is more rapidly diffused than ether. Its rapid detoxification is due to its chemical disintegration in the organism and more particularly in the liver. In the rabbit one-half of the injected maximal narcotic dose is disintegrated in thirteen minutes. Only traces of the drug are eliminated in the urine. There is practically no change in color, respiration, pulse or blood pressure. Usually a rise of ten to fifteen heart beats and a slight fall of blood pressure are the only changes occurring in the cardiovascular system.

Preoperative medication is not necessary and has never been used in our series although morphine or scopolamine may be given when less of the evipal is required. It is suggested that no other barbiturates be administered preliminary to the injection, however.

All preparations for the operation are completed before the anesthetic is started so that there will be no delay after narcosis is complete. The solution is prepared fresh as above described and introduced slowly into one of the veins in either arm and the patient is instructed to count. Usually at the number 20 or after 3 or 4 c.c. are injected the patient becomes drowsy and after waiting 30 seconds about 2 additional c.c. are administered making about 6 c.c. in all. The needle may be left in the vein under the care of

an assistant who also watches the jaw and if longer anesthesia is desired the remainder may be introduced one c.c. at a time over a period of four to six minutes.

While the narcosis is complete a few muscular movements may occur but never sufficient to interfere with the operation. After a period of fifteen or twenty minutes the patient awakens or may be easily aroused with a feeling of euphoria, absence of nausea, vomiting or headache and generally forgetful of all that has taken place.

At St. Anne's Hospital in the urological service we have used evipal in 80 cases and while this is a short series and this report is a preliminary one, the results have been so gratifying that I am sure subsequent experience will be just as satisfactory. We have had no untoward effects and have heard of nor seen records of any fatalities. In experimental animals where lethal doses were administered it was found that death was due to respiratory failure so that we have kept coramine, digifoline, and adrenalin convenient just in case a stimulant should be indicated.

Over half of this series were ambulatory patients who after a rest of one-half to two hours left the hospital without any apparent by-effects from the drug. Several were men past seventy years and one patient was given the anesthesia three times in two weeks.

It is recommended by the manufacturer that it must be used with caution in the very old, in cachetic and debilitated individuals or those suffering from advanced cardiac, vascular or renal disease.

715 Lake Street.

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## ANALGESIA AND ANESTHESIA IN LABOR

EUGENE CARY, M. D.  
CHICAGO

The subject of "Analgesia and Anesthesia During Labor" can only be sketchily covered in the brief time at our disposal. The author, therefore, will endeavor to present merely the general trend of thought on this work and conclude briefly with his personal views on the subject.

Charles E. Hunt, in the June, 1935, issue of



*Northwestern Medicine*, gives the results of a questionnaire, sent to 80 representative obstetricians in every state of the Union. He received 78 replies. Of these, 87% were using barbiturates in various combinations.

The concensus of opinion seems to be that pentobarbital sodium or nembutal gives, universally the best results alone or, if restlessness is encountered, in combination with scopolamine or rectal ether, after the method of Irving and his co-workers of the Boston Lying-In Hospital. Irving, in *Surgery, Gynecology and Obstetrics* for January, 1934, published a report of 860 cases in which he used eight different methods of analgesia. He concluded that nembutal with scopolamine was the most effective method and it is now become the standard used at the Boston Lying-In Hospital.

Lynch, of California, also states that nembutal in conjunction with scopolamine, is the only barbiturate which he now values. Randall of the Mayo Clinic and Curtis of Northwestern Medical School, favor nembutal; the latter stating that the effects are more rapid and wear off much sooner than sodium amytal. Hunt concludes that the tendency now is to discontinue the intravenous method of medication and rather administer the drug orally or rectally, preferring nembutal to sodium amytal.

Charis Gould and B. C. Hirst of Philadelphia, in the *American Journal of Obstetrics and Gynecology* for August, 1935, analyze 24 answers to an inquiry sent out by Hirst. From this data they gathered the following facts:

1. The most widely used analgesic agents are the barbiturates, nembutal being the most popular.
2. Intravenous medication is declining.
3. The excitement induced by the barbiturates is controlled by the use of rectal ether.
4. Barbiturates are frequently combined with scopolamine; occasionally with morphine and scopolamine.
5. Morphine and scopolamine seem to be the second most common type of analgesia, never closer than 4 to 6 hours before the expected time of delivery.
6. Inhalation anesthesia is almost universally used during the late second stage and at delivery.
7. Nitrous oxide and oxygen is the most common inhalation anesthesia; mixed with ether, when greater relaxation is required.

Joseph L. Bear of this city says, "that the most popular analgesics are the barbituric acid derivatives. It must be emphasized that when they are used in small doses the patients are prone to become excitable. When they are used in maximal doses, labor tends to

be prolonged, usually requires operative termination and may require prolonged resuscitation of the fetus. The maternal reaction to these drugs is completely grateful, but the obstetrician who uses them must bear in mind the above disadvantages. Morphine in sufficient dosage remains the ideal anodine for the pain of the first stage of labor. The addition of scopolamine for its amnesic value is open to the same objections as those which apply to the barbiturates. Gas analgesia is a first rate method for the control of pains of the second stage of labor and may be deepened into anesthesia for the actual delivery. Sedation and relief by the rectal administration of ether avertin or the ether-oil-quinine mixture is open to the same objections which apply to the other drugs of prolonged action."

The above is a brief summary of the current methods of producing analgesia with anesthesia in obstetrics. The author, however, is opposed to any fixed routine for all patients, and to "pushing" any drug to the point where a complete loss of memory has been produced. Where this procedure has been carried out many instances have occurred of patients becoming unruly and uncooperative, of severe cervical lacerations, of an increase in operative delivery, of cyanosis of the fetus; and of a resultant atony of the uterus, resulting at times in post-partum hemorrhage.

One also should consider the difference in caring for a multiparous woman in contrast to a primipara. It is not necessary to give a multipara as much sedative, for, in most instances, the labor will be much shorter and less painful.

The author's practice has been to observe his primipara patient carefully at the onset of labor and, when the uterine contractions become severe enough to cause real distress, to give 1.5 grains of nembutal by mouth. This is repeated in one hour. Progress of labor is then watched. If dilatation of the os does not occur and the patient shows signs of fatigue, 1/6 to 1/4 grain of morphine and 1/150 grain of atropine sulphate are administered hypodermatically, preceded by 20 grains of sodium bromide by mouth. The administration of the morphine is given always with the assumption that the delivery will not occur within the next four hours.

Another drug often used by the author, yet lost sight of by most physicians, is chloral hydrate. If effacement is complete and the os is dilatation at least 4 cm., the administration of 7.5 grains of chloral hydrate by mouth almost invariably will terminate the labor in a relatively short time. In fact, it almost seems, at this

stage, to have a specific relaxing influence on the lower uterine segment.

When "expulsive pains" begin, or when the head reaches the floor of the pelvis, it has been his custom to administer nitrous oxide and oxygen with each contraction and continuously at the time of the birth of the head. After the head is delivered, the cord is freed, if around the neck, and pure oxygen is administered to the mother for a minute or two. It is his belief that in this manner, whatever ill effects the nitrous oxide might have had on the child are counteracted.

If forceps are necessary, nitrous oxide and oxygen are usually sufficient; if not, ether usually is added until relaxation is sufficient to complete the operation.

In closing, brief mention should be made that chloroform in carefully measured doses, given by the open method in the last of the second stage of labor, still remains an excellent method, if used by one who understands thoroughly its use and who will combine it with suggestive treatment during delivery.

## CONGENITAL UMBILICAL FISTULA

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CHICAGO

**A. Introduction.** This is a very interesting case because of the rarity of congenital fistulae in general, and because of extreme infrequency of the variety of the congenital fistula in this case in particular.

The patient in question is a girl aged 21 years, weight 185, height five feet five inches, who came to me with a history of having a slight discharge from the umbilicus since birth. The discharge has been constant, not profuse, yellowish in character. There was no pain associated with the discharge. She became more concerned of this ailment since her age and maturity invited social contacts.

In her past history there is apparently nothing significant or correlative. Her menstrual period began at twelve years of age and has been regular periodically. She has been married recently and had miscarried at three months about one year ago.

All laboratory findings were essentially negative in the urine and blood.

**B. Physical Examination.** Abdomen: Soft, round, presenting no masses on palpation and no points of tenderness. There is no evidence of any enlarged viscera and no fluid.

Umbilicus is markedly invaginated and pointing downward; displayed no pain or tenderness on manipula-

tion and no redness. A slight yellowish discharge was noted. The discharge was not particularly increased on manipulation and did not flow steadily according to the patient's statement. The amount of discharge that was secreted in a day was not more than 6 cc.

An attempt was made to collect the fluid for detailed examination but only enough was obtained to examine the fluid for feces, bile and urine. The bile test was slightly positive while the urinary tests were unsuccessful. B Coli were absent and no other organisms were present.

The umbilicus compares fairly well with a type which falls into Group II as classified by

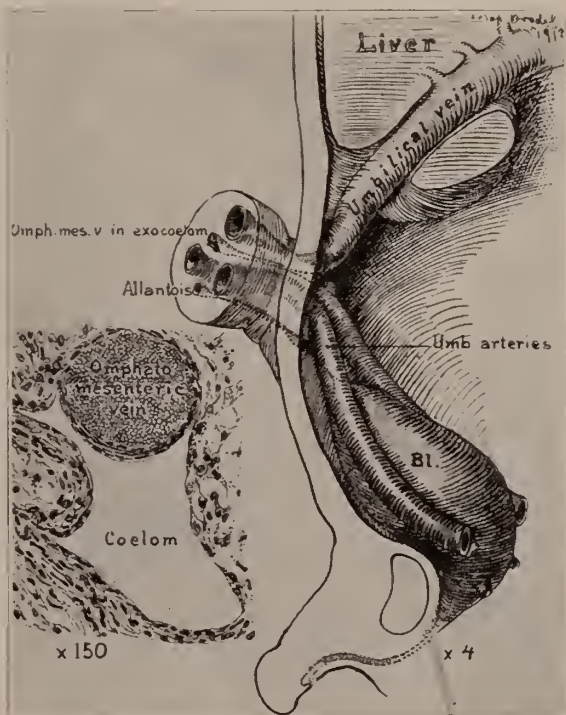


Fig. 1. Shows the sagittal view of the umbilicus, showing relations of the umbilical arteries and vein. The urachus passes out into the cord between and below the umbilical arteries. (Diagram taken from Cullen, 1916.)

Thomas Cullen of Johns Hopkins. This group is named as the "Cushion Incomplete" in which the crescent or horseshoe is below the umbilicus. According to Cullen this condition suggests the presence of a taut and short round ligament of the liver co-existing with relaxation of the abdominal wall. The variations are numerous so that while, at times, the explanation is well correlated it is not to be interpreted too dogmatically.

In the careful search through the literature on the subject it is apparently clear that very few cases are on record of congenital umbilical



fistula due to a patent umbilical vein; while a considerable number of cases have been reported of patent umbilical arteries.

C. *Anatomical — Embryological Considerations.* In any study of congenital umbilical fistula there are mainly three anatomical structures to consider:

1. The omphalomesenteric duct (Vitteline duct).
2. The umbilical arteries.
3. The umbilical vein.

1a. *At Term* the omphalomesenteric duct is recognized as a solid epithelial cord passing

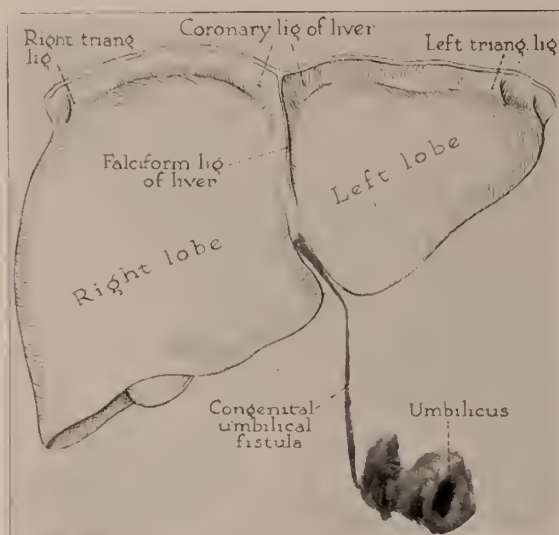


Fig. 2. Shows the relationship between the umbilical fistula and the liver. The fistulous tract is photographed from the actual tissue, which was removed at operation.

from intestine to abdominal wall, but it has no lumen.

*After Birth* the duct usually disappears. When the duct remains patent the fistula that is brought about is called the Meckel's diverticulum, umbilical fecal fistula or an intestinal cyst.

2a. *At Term* the umbilical arteries lie on either side of the urachus, pass downward on either side of the bladder and are connected with the anterior divisions of the internal iliac arteries.

*After Birth* the distal portions of their lumina become narrower and the vessels finally appear as the obliterated hypogastric arteries.

3a. *At Term* the umbilical vein passes directly from umbilicus to the substance of the liver. It is supported by the suspensory ligament of the liver.

*Later after Birth* the vein becomes impervious and in the adult the thickened outer edge of the suspensory ligament of the liver represents what remains of the umbilical vein.

D. *Operation.* In undertaking surgical procedures on congenital umbilical fistulae it is important to remember to make all skin incisions to the patient's left of the midline. After making the incision to the left of the midline I encircled the umbilicus and resected it from its cutaneous attachment and dissected it posteriorly to the peritoneum in the midline; then continuing through the left rectus incision I found the distal portion of the fistulous tract through the peritoneal reflection just where it enters the central depression in the umbilicus and proceeded to dissect the fistulous tract proximally.

The course of the fistula was as follows:

From umbilicus proximally: Skin, adipose tissue, rectus abdominus fascia (anterior layer), rectus muscle, posterior layer of rectus abdominus and transversalis fascia and then peritoneum. From the peritoneal surface of the umbilicus the tract extended upward and laterally between the peritoneum and transversalis fascia for about nine cm. and ended in the round ligament of the liver. I continued the resection for about two or three cm. into the substance of the ligament between the two lobes of the liver where the tract seemingly ended blindly into the substance of the liver. I removed the entire fistulous tract with its attachment to the umbilicus, closed the fascial compartments and closed the abdomen without drainage.

*Uterus* was in position and very small. The adnexa were normal.

*After Care:* The patient was given the average postoperative care received by abdominal cases; made a speedy recovery and was discharged from the hospital. The incision remained clean to the present time. The patient was operated on March 18, 1934.

The internes present were Drs. Movius and Vesley, and the following nurses were in attendance: Miss Hartley, Miss McAfee, Miss L. Wigg, Miss Segert and Miss Travers.

E. *Pathological Report.* Dr. R. Jaffe, No. 165.

*Gross:* Resected Umbilicus.

The central depression about 22mm deep and 12mm in diameter. On the inside attached to it is a cord 10 cm long and 2mm in diameter.

*Microscopic:* Fistula. The central depression is lined by a hornifying squamous epithelium with slender papillae. Underneath the epithelium there are perivascular round cell infiltrations. The cord attached to the inside consists of strands of dense connective tissue.

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#### MYASTHENIA GRAVIS: REPORT OF CASE

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BENTON, ILLINOIS

Myasthenia gravis has been called asthenic bulbar paralysis and myasthenia pseudo-paralytica.

Myasthenia gravis presents a complex of symptoms, a set of symptoms which occur together, a syndrome which represents the sum of the signs of the morbid state. The main distinctive thing about myasthenia gravis consists of weakness of voluntary muscles. It comes on by treachery and deceit; by sly, crafty, wily steps. The patient may experience a general feeling of uneasiness or indisposition, discomfort, or distress and heaviness in the legs as though the bodily weight were too great a load for the legs. As the disease progresses it assumes a preference for certain muscle groups. The foremost, most noticeable symptom of which the patient complains is the fact that he tires so easily upon the slightest exertion. As the disease progresses, as the loss of strength progresses, symptoms appear in certain groups of muscles, which symptoms cause the patient to consult his physician. The muscles which are usually attacked are those of the eye, eyelids, face, lips, tongue, palate, pharynx, larynx, neck, trunk limbs and respiratory muscles. Myasthenia gravis is a progressive muscular weakness without atrophy or paralysis (except in rare cases) and upon autopsy very few, if any, morbid anatomical changes are found.

Weakness of the muscles of the tongue, pharynx, larynx and lips cause imperfect articulation, so that the patient can scarcely make himself understood (dysarthria) and great difficulty in swallowing (dysphagia), and fluids regurgitate through the nose upon attempt to swallow them. The difficulty in articulation (dysarthria) may come on early in this disease and cause the patient to falter and stammer in trying to speak, and the effort to speak so tires the muscles as to make him emotional and matters become more aggravated, and he has a nasal tone of speech.

The muscles of the eyelids and of the eyes become so affected that he has drooping of the eyelid (ptosis), and he sees a single object as though it were double (diplopia); there may be a deviation of one eye from its proper direction, so that the visual axis cannot both be directed at the same time at the same objective point (strabismus), paralysis of the external ocular muscles (ophthalmoplegia externa); there may be an involuntary, rapid, dancing movement of the eyeball (nystagmus). Diplopia or double vision may come on quite a while before the appearance of other definite symptoms.

The diplopia and ptosis make reading very difficult or impossible, and this interference with sight cannot be corrected by the use of glasses. The weakness of the muscles of the larynx, pharynx, tongue, palate and lips make it impossible for the patient to articulate in a manner to be understood; his speech seems to be very laborious and thus embarrassing. The muscles of mastication and deglutition become so inactive as to make it difficult or impossible for the patient to chew or swallow, and in attempting to swallow fluids they regurgitate through the nose; the patient is unable to spit, and accumulation of secretions from the mouth and throat almost or quite suffocate him. He cannot pucker his lips to whistle. The muscles of the lips and mouth become so weak that the patient's mouth remains open, with drooping at the corners. The muscles of the neck may be so weak that the patient cannot hold up his head, except with his hands. The muscles of the limbs and body may be so weak that he cannot use them. The weakness of the respiratory muscles causes difficult breathing (dyspnea). The patient is easily tired by what would normally be an insignificant effort.

Myasthenia gravis is found in young subjects sometimes, but it mostly occurs in adults, and the incidence is about the same in the sexes.

No germ or toxin has been discovered as the cause. Some think it is largely the result of an inherited predisposition. Others believe it is caused by some wrong in the endocrine glands, which may be a family characteristic or which may result from over-exertion, or that it may follow some acute infection or worry over financial or other perplexities, or by a thymus gland that persists into adult life. My guess is that a combination of inherited predisposition (which may be an endocrine imbalance), combined with ex-



cessive fatigue, such as grief, financial reverses, infection, etc., are concerned in the cause of most cases. It is a progressive disease, and slight symptoms may exist long before the patient finds it necessary to make complaint, when rather suddenly he finds some well developed symptom (diplopia, ptosis, stiffness of tongue, inability to whistle, spit, etc. (annoys him. Myasthenia gravis is perhaps the only critical disease in which there is no pain, and the only one in which from exertion the muscles are rendered inactive, but activity returns upon resting. Dr. Jolly discovered that under the faradic current the muscles became rapidly exhausted, but muscular activity returned after a period of rest. Dr. Jolly further found that, though the muscles were exhausted into inactivity by application of the faradic current, they at the same time had response to the galvanic current.

It is said that some disturbance of a metabolic character has been found—too much creatine (which may be derived from the juice of muscle tissue) in the urine. Again, there may be too little creatine in the urine and the blood. Then calcium, which is normally found in nearly all of the organized tissues of the body, may be impoverished. Again, there may be an abnormal amount of sugar in the blood. And it is the opinion of this writer that a vitamin deficiency (especially vitamin E) may play an important role in the causation of myasthenia gravis. There seems to be very little, if any, disturbance of the reflexes, except they may be weaker than normally.

As to treatment, as in so many other serious diseases, rest of body and mind are to be enjoined. The patient should not make bodily exertion, and in grave cases he should not hold any conversation. He should have a nourishing liquid or soft or tender diet, with feedings at two or three hour intervals. He should receive his food slowly to prevent choking or regurgitation through the nose. He should be kept in a temperature of 70 deg. He should be kept as nearly as possible at complete rest, and must not be massaged. If the patient is an adult, and if the thymus still exists, x-ray may be employed. As to medicines in the treatment of myasthenia gravis it has been found that glyco-coll (sometimes called "glycine," and glyco-coll must not be confounded with the photographic developes, which is a poison) in level teaspoonful

doses three times a day is beneficial. J. S. Summers, M. D., of Jefferson City, Missouri, in a paper which he has prepared for publication in the *Journal of the Southern Medical Association*, says:

"Creatine in the form of phospho-creatine in the muscles seems to be the activating substance that energises the muscles. If creatine is given by mouth most of it is excreted by the kidneys and passes out into the urine as such, and feeding it does not increase the creatine content of the muscles, and consequently there is no clinical improvement. Glycocoll, one of the simpler amino-acids, a sweet glue or gelatine sugar derived from muscles and other proteins, is more of a food than a drug. It is a tissue builder. It seems to supply the deficiency in muscle metabolism. This creatine is retained in the muscle as phospho-creatine and serves over and over again to supply energy for muscle contraction and muscular efficiency which increases at a remarkable rate. The glycocoll plays a definite part in muscle metabolism. It does something to alter the metabolism of creatine. Feed it to the patient and he improves; cease feeding it and he ceases to improve, and may revert. Creatine diffuses out of the muscle only after the muscle is fatigued. Then the creatine phosphate is broken down into creatine phosphoric acid, so that the creatine can diffuse out."

So much for the theory of glyco-coll benefits.

As to the pathological findings, Dr. Summers says:

"There is a marked round cell infiltration of the muscles. Buzzard, in 1905, called these areas 'lymphoragias.' They are found throughout the skeletal muscles and in other organs. Both the central and peripheral nerves are normal by the most skillful microscopic observation. In other words, there is very little pathology in either the nerve or muscle tissue."

#### REPORT OF CASE

Dr. J. O. H., aged 57, comes of a family the men of which are, as a rule, overweight, plethoric, full-blooded, red faced, with vascular turgescence. The patient's father was a physician, and died at the age of 75, after several years of disease of the heart, probably arteriosclerosis, and for five or six years prior to death was afflicted with dementia—probably dementia paranoides. Patient's mother is living; at the age of 80 she enjoys good health and activity. Patient has five sisters living, aged respectively, 60, 58, 47, 43, all in good health, but obese and plethoric. He has a brother living and in good health at 55 years. He had two sisters die in infancy, and one brother died at age of 38 from accidental shooting. The patient has two sons, one a dentist, aged 34, who is hard of hearing; his ear trouble is said to have developed from affected tonsils. The other son is 17, and is an endocrinopath—probably an involvement of the pituitary, thymus and thyroid. Until he had endocrine treatment he was very much overweight, and his mind now is only that of a child much younger.

Until this attack of myasthenia gravis the patient has always enjoyed good health. He formerly weighed 235 pounds, now he weighs 167; however this reduction in weight is, perhaps, largely due to his inability to chew, and the difficulty of swallowing. For twenty years or more he conducted a drugstore, but six years ago he resumed the practice of medicine. He always had a speech defect; when attempting to talk it appeared that it required great effort to control the vocal chords and muscles involved in speaking and at the beginning of a sentence the effort to talk seemed to distress the vocal chords and he would make a gurgling sound in the throat, a very peculiar stammering which is difficult to describe—somewhat like the noise which a rain-crow makes.

Three years ago the patient's vision became unusually affected, and soon he noticed when using his eyes rather intently they were easily fatigued, and he had diplopia, and a little later ptosis of the left lid. Eighteen months ago he consulted an oculist, who was unable to benefit the patient with glasses and advised him to have a thorough examination. The patient had x-ray examination, urinalysis, blood tests, blood chemistry, spinal puncture, metabolism test, Wassermann, Kahn. All found nothing from which to diagnose. His blood pressure two years ago was 180/100. Eighteen months ago he had his teeth out. For quite a time he had halitosis, a cadaveric bad-breath which was almost unbearable to those in the room with him, as well as to the patient himself. The tongue was heavily coated with a dirty, yellowish coating, and the tongue appeared swollen.

He has for thirty years been an inveterate smoker, the stronger the pipe the better, and smoked from morning to late at night.

The first distinctive symptom to call this patient's attention was diplopia, and soon ptosis of the left lid; dropped-jaw soon appeared making it difficult to chew. Then it became difficult to swallow and impossible to spit, so that the secretions of the mouth and throat almost suffocated him; then followed slow, drawing, careful, though somewhat indistinct speech. He had a feeling of heavy weights upon his legs as though his body were too heavy a load for his legs to carry. After walking a short distance, or upon slight exertion in the performance of his daily rounds he felt the need of rest. On account of weakness of the muscles of the neck and head he held his head in an abnormal, asymmetrical position, and on account of the ptosis and dropped-jaw he puts his chin forward in attempting to look at any one. With all these symptoms there has been no appreciable paralysis, but a muscular weakness, especially after exertion; but the function of the muscles returns after a short rest. A year ago he seemed to lose the use of his tongue, in so much that he could not whistle or spit, had great trouble to swallow and he could not articulate, and it was impossible to understand what he attempted to say. Liquids and food would regurgitate through his nose, which made it necessary to be very careful about his feedings to prevent choking. The symptoms have been progressive from the beginning of the ptosis, diplopia and dropped-

jaw. At the present he weighs 167 pounds and, perhaps, the loss of weight has been largely because of his inability to chew or swallow. He is very easily fatigued. When he holds his hands at arms' length and opens and closes the fingers as rapidly as possible, he finds at the end of 30 seconds that the muscles of the hand are so exhausted that he cannot use them, try as he will, and that he is fatigued all over, and he pants for breath, but after a period of rest the activity of the muscles has become reestablished.

Six months ago the patient began taking glycooll in teaspoonful doses three times a day, and has taken fourteen pounds with little, if any, perceptible benefit. Two weeks ago he began taking 1 cc. of prostigmin (subcutaneously) in connection with the glycooll, but the improvement still seemed very transitory. Within twenty minutes after administration of a dose of prostigmin he can articulate and swallow, and the effects last from three to six hours. A dose of prostigmin thirty minutes before eating is very helpful because of the power it gives to the muscles of the tongue and of mastication. I might say that for some weeks he has been taking ephedrine  $\frac{3}{8}$  grain, twice or three times daily. Ten days ago he began taking, in conjunction with the other remedies, twenty drops of embry-ol in milk once a day, and he has gained five pounds within the ten days. Embry-ol is the cold-pressed oil of wheat hearts, and is rich in vitamin E. The treatment in this case now is as follows: 1 cc. prostigmin thirty minutes before meals, three times a day; thirty minutes after meals a level teaspoonful of glycooll in water, and fifteen minutes after giving the glycooll give  $\frac{3}{8}$  grain ephedrine. Thirty minutes after breakfast give twenty drops of embry-ol in milk.

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## BLOOD PRESSURE VARIABILITY

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The determination of the blood pressure is probably one of the most commonly used procedures in medicine. Because of its general use we are all familiar with its significance in arriving at certain conclusions regarding a patient. The current literature is replete with references concerning the various mechanisms that are involved in the maintenance of the blood pressure. Likewise the changes that occur in disease conditions, and also those changes that follow the appropriate treatment are completely discussed. Hence in this paper there seems to be no need for mention of the mechanism or of changes in disease, for they are quite well understood by everyone.

However, in spite of the general acceptance

From the Chicago State Hospital.



of the explanations and mechanisms, there still remains much that is not clearly understood about blood pressure. For example we all know that variations may occur in disease conditions; but practically no mention is made of the variations that may occur in the so-called normal individual. It is the purpose of this paper to show

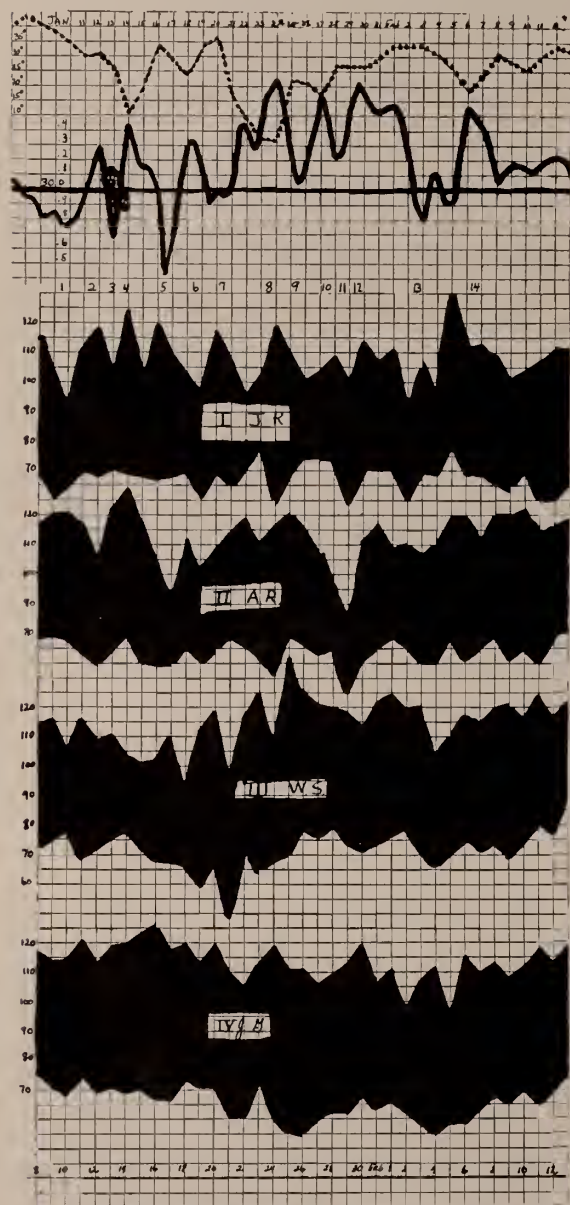


Fig. 1. Range of temperatures.

that variations, sometimes of great magnitude, occur in the normal healthy person. Certain conclusions will be made that are in direct opposition to the view generally held concerning the interpretation of the normal blood pressure.

As far as can be determined there are only two references<sup>1</sup> in the literature that deal in detail with blood pressure variations in the so-called normal person. While a number of reports deal with daily and even hourly determinations, the results are averaged, and the means taken. Obviously the final interpretation will be quite different. On account of the scarcity of the material in the literature, it is believed that a representation of the material concerning blood pressure variations in terms of daily variations will be of value in arriving at a clearer conception of the meaning of blood pressure, and its relation and application to the normal and diseased individual. The issue of blood pressure meaning seems especially to have been clouded by mass figures, especially those which tend to give a certain tension level to definite specified age groups. Because of the manner in which averages have been arrived at, the meaning in terms of the single individual has been entirely lost.

The procedure most commonly used in the measurement of the blood pressure in man is simple and is sufficiently well known as to call for no detailed description. So commonly has the determination come to be used that few indeed are the patients who do not know something about their blood pressure. In most instances they have been told its significance in terms of elevated, decreased, and occasionally normal pressure. Whatever it may be, it was no doubt arrived at in most cases, following a single or at the most several determinations. Of course it is understood that the usual procedure of determination merely gives a measure of the pressure required to obliterate the sounds of blood flowing through an artery that is constricted by a cuff applied to the arm.

For the present study, determinations were made daily on four patients, selected on the basis of their cooperation and behavior. As will be later mentioned, the selection was also made on the basis of the body type. All were hospitalized at the Chicago State Hospital, and were living on the same ward. As far as is known they were all given the same food, and were all under the same daily ward routine. In other words, their daily life was standardized as well as possible. An ordinary mercury manometer was used for the determinations. The rubber cuff was always placed on the left arm, and the readings were made with the patient in the sitting posi-

tion, and always in the same room. The patients were at ease, and never was there any demonstrable muscular tenseness. Because of these precautions, it is felt that variations were not due to different emotional states in themselves. Further support of this last statement will be given later.

The systolic reading was taken as that point on the manometer at which the sounds were first heard in a regular definite manner. The diastolic pressure was taken at that point at which the sounds were no longer audible. Since all determinations were made by the same person, it is felt that the error resulting from faulty technique is negligible.

To obviate any additional error, all readings were made at about 8:00 A. M. The period of observation extended from January 8 to February 13, inclusive. During all this time, there was no demonstrable change in the physical state of the patients under observation; there were no infectious conditions, or any other condition present that might affect the blood pressure.

A brief summary of the hospital record of each patient is as follows:

Patient 1. 43042: Admitted to the Chicago State Hospital January 25, 1934. On admission the age was given as 33 years, born on January 14. The physical examination showed no gross pathologic findings. The blood Wassermann reaction and the urine tests were within the normal limits. The mental symptoms that were presented by the patient warranted the classification of dementia praecox, catatonic type. On admission the patient was restless and hyperactive, but since October 15, 1934, she has been quiet. During the period of this study the patient presented a silly superficial attitude with marked emotional indifference. She showed no periods of excitement, and presented the same physical and mental picture day after day.

On admission she weighed 97 pounds, and was 63 inches tall. The blood pressure was recorded as 120/60.

Patient 2. 42315: White female admitted to the Chicago State Hospital August 24, 1933. The age was recorded as 38 years, the birthday was unknown. The patient was married and had three children. The physical and laboratory examinations indicated no abnormal findings. The mental reactions were those of dementia praecox, hebephrenic type. During her entire stay at the hospital the patient has presented a picture of indifference. She does no work, and sits about the ward all day, unresponsive to efforts to arouse her interest. In spite of this attitude, she has always been friendly.

On admission she weighed 118 pounds, and was 55 inches tall. The blood pressure on admission was 124/76.

Patient 3. 39127: White female admitted to the

Chicago State Hospital July 2, 1931. Birthday was unknown, but the age was given as 31 years. The patient, previous to her commitment, had periods of excitement, which were always short-lived and over in the space of a few hours at the most. She was classified as a case of mental deficiency. The physical and laboratory and neurologic examinations were indicative of no pathology in the patient. Here she has occasionally periods of excitement. During the period of study they always occurred when the blood pressure readings were at their peaks. By reference to the particular chart, it is seen that the rises were abrupt which indicated some emotional factor. However, the drops always were gradual. If emotional states were responsible for the increases in blood pressure, then the drops should also be quite abrupt. It is believed that the changes in behavior were conditioned by the independent rise in systolic blood pressure, and that the rise in blood pressure preceded the emotional upset.

On admission the weight was 164 pounds, and the height was 65 inches. The blood pressure was recorded as 110/70. There were no findings that indicated anything abnormal in the physical state.

Patient 4. 44104: White female admitted here October 2, 1934. Born on November 26, 1916. The physical, laboratory and neurologic findings here showed nothing abnormal. The mental findings supported the classification of dementia praecox of the hebephrenic type. Here the patient has maintained the same stereotyped behavior, characterized by a lazy indifference to all stimuli. She has had no restless or excited periods.

On admission her weight was 160 pounds, and the height was 61 inches. The blood pressure was recorded as 128/92.

On the basis of other work now in progress the evidence points to the fact that the tall, lean (leptosome) type of person shows the greater variations in blood pressure, both from the number of changes, and the severity of the variations. On the other hand, the short, obese (pyknotic) person is relatively stable when compared with the leptosome. An indication of the body type of the four individuals here considered is afforded by the weight/height ratio. Thus this ratio will be less for the leptosome, and greater for the pyknotic type. The ratios obtained from the weight/height figures are as follows:

Patient 1—97/63 or 1.54

Patient 2—118/55 or 2.14

Patient 3—164/65 or 2.51

Patient 4—160/61 or 2.61

Thus patient 1 falls into the leptosome group, while patient 4 falls into the pyknotic group, with patients 2 and 3 placed appropriately.

Reference to the charts show that it is the leptosome or patients 1 and 2 that show the greater number of changes, while patients 3 and 4 show



fewer changes, and the changes in themselves are less abrupt. On the basis of many other similar studies, this relationship has been found to be quite constant.

A critical analysis of the variations in the blood pressures here recorded shows that there is operative some common factor, for in general all patients show similar periods of increased or decreased pressures. In some instances the changes are quite abrupt, while in others they are accumulative. Patient 1 shows the first, while patient 3 shows the accumulative phenomena quite well. From previous studies<sup>2</sup> dealing with the effect of the meteorologic environment upon the organism, it was noted that there existed a close correlation between the sedimentation test, and the serologic tests on the one hand, with the meteorologic states on the other. It is in no way meant that the meteorologic environment is solely responsible for these changes, it may merely condition it to some degree. For purposes of information, the meteorogram for the period is placed over the graphs. Changes are to be expected with definite changes in the meteorologic state, such as occurs when the barometric pressure is reduced with an increase in the external temperature, or when the barometric pressure is increased, with a corresponding decrease in the external temperature. Such states are designated by numbers placed under the barograph.

Analysis shows that there exists a correlation, but it is a general one. Possibly the meteorologic state may have something to do with the conditioning of the blood pressure responses. However, it is at the most only one of the many factors. Further study is indicated in an effort to account for the individual variations.

For the purpose of information, the menstrual dates are recorded:

Patient 1—Jan. 10-13

Patient 2—Jan. 19-23

Patient 3—Jan. 10-13 and Feb. 4-7

Patient 4—Jan. 16-20

From these dates it is seen that there is no appreciable change in either the systolic, diastolic, or pulse pressure either preceding, during, or immediately after the menstrual periods. This general observation holds true in all the cases so far studied.

*Comment.* The charts obtained from the four patients here presented are taken as the repre-

sentative of a series of other charts. In general, the leptosome type of individual reacts in such a manner as to have many variations in a given period of time, and the variations are abrupt and of some magnitude. In contrast to this, the pyknotic type of individual reacts less abruptly, and less frequently, and the variations are of lesser magnitude. As previously stated, the original patients were so selected as to rule out the emotional factor. It is known that emotional stress may raise the systolic pressure as high as fifty millimeters of mercury. However, in such instances, when the emotional stress is removed, the pressure falls rapidly, sometimes within the space of an hour. In the instances here recorded, the patients were considered emotionally deteriorated, and were not known to react to such factors, at least not apparently. Further, the increases of blood pressure were not transitory affairs, but usually persisted for several days. This is especially true of the decreases of blood pressures following an abrupt rise. In most instances, the pressure continued to drop for several days, thus ruling out the emotional factor.

From other work now in progress, it is known that the leptosome type individual is the more susceptible to the contracting of infectious diseases, whereas the pyknotic type of individual is the more stable one, who usually succumbs to metabolic conditions, such as hypertension, etc.

From the form of blood pressures, the writer can only conclude that the usual method of recording the blood pressure of say, 120/80 is almost valueless. The single reading might be taken at such a time when the patient was at his or her peak, or at a low level, or any point between. It seems that the only logical method then should be to take a series of readings, graph them, and from the composite picture draw conclusions. In the conclusions, should be considered such things as the frequency of the variations, the type of variation, and the magnitude of the changes. Obviously, a person who shows few changes, and in whom the changes are minimal is more stable than one who shows abrupt, frequent and maximal variations.

#### CONCLUSIONS

1. There occurs definite variations in the blood pressure which are physiologic and not pathologic in nature.
2. The type of the variations of blood pres-

sure seems to be conditioned to some degree by the body type.

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### THE CORRELATION BETWEEN APPENDICITIS AND GALL-BLADDER DISEASE

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Mechanically the appendix and the gall-bladder are similar in construction, in so far as they are blind pouches or tubes connected to their dependent contemporaries by a musculo-mucous membrane valve; the blood supply in each case running externally along the longitudinal axis, the smaller vessels circumventing the organ to terminate in small vessels at the ends and anastomosing within the mucous lining throughout the organ. Infections to both the appendix and gall-bladder occur at these terminals, producing primarily an endarteritis. These infectious processes can be produced any place along the axis of the organs, involve the surrounding tissues and spread either directly or secondarily by cutting off the blood supply.

Charles Gordon Heyd<sup>1</sup> relates four theoretical ways in which a gall-bladder may be infected. One of these presupposes a mucosal infection, the infecting organisms reaching the gall-bladder either by ascent from the duodenum, or descent from the liver. Many experiments have been done to try to induce infection directly into the gall-bladder, and it has been found that it is very difficult to infect the organ by injection of virulent bacteria into the cavity. Gall stones are not produced likewise, in this manner. Other infectious processes must be also present to lessen the resistance of the underlying tissues in order to presuppose to gall-bladder infection. Even regurgitation of duodenal infectious material has been demonstrated in the gall-bladder without infecting the organ itself. Two other means of infection of the gall-bladder are by carrying embolic suppurative material by means of the

blood stream, and by direct continuity of infection with neighboring viscera. In the blood stream we particularly distinguish a hematogenous infection by means of the portal circulation. If the vascular system is responsible for the gall-bladder infections one would think naturally that the liver would be simultaneously involved. This, however, is not the case, as a preponderance of evidence has been cited in which the right lobe of the liver is the usual portion infected, and particularly that portion in intimate contact with the gall-bladder. The fourth method of infection of the gall-bladder is by means of the lymphatic stream. It has been demonstrated by Franke, Sweet, Deaver, and Pfeiffer that there is a very intimate and extensive lymphatic connection between the gall-bladder, liver, common duct and pancreas. Anatomically, according to Sappey, Sudler and Graham, there is no separation between the extra- and intrahepatic system of lymphatics, and a hepatolymphatic infection would offer a reasonable basis to account for most of the cases of cholecystitis.

It seems logical to believe that infections of the gall-bladder therefore were direct infections of the wall of that organ from an infected liver, reaching the liver by means of the portal veins, involving the periportal tissues producing a pericholangitis, traveling through the lymphatics directly by extension to the gall-bladder. This would offer an explanation for the cholecystitis that is coincident with appendicitis, peptic ulcer, typhoid fever and suppurative hemorrhoids.

Rosenow in his original studies of gastric and duodenal ulcer<sup>2</sup>, cholecystitis<sup>3</sup> and appendicitis<sup>4</sup>, injected cultured bacteria from active inflammatory organs into the blood stream of rabbits, dogs, and guinea pigs. The tonsils were used as a basic organ for bacterial culture of streptococci. In a series of 65 animals, 32 were injected with cultures from the tonsils, 6 with bacteria found in the pus from the tonsils, and 7 with the streptococci isolated from 3 incised ulcers and 23 with the cultures of infected teeth. Hemorrhage or ulcer or both (Gastric and Duodenal) was found in 80% of the cases injected. Fifteen animals showed gall-bladder infections besides the ulcers and hemorrhage. Seven showed lesions in the skeletal muscles, 5 in the joints and 1 each in kidney and urinary bladder, 9 in the heart valves.

Cultures were taken from the site of these

<sup>1</sup>Presented before staff of Woodlawn Hospital, March, 1934.



ulcers and gall-bladder infections in 17 cases and strains recovered in 15. Later streptococci<sup>5</sup> were found in 17 cases of 27 chronic ulcers excised at operation, staphylococci in 6, colon in 5, and 5 were sterile cultures. All these cases had active

associated gall-bladders. This suggests that common associations of 2 or more of these conditions in man may be due to embolic infections of bacteria having affinity for the structures involved. And, especially, does this occur in organs that

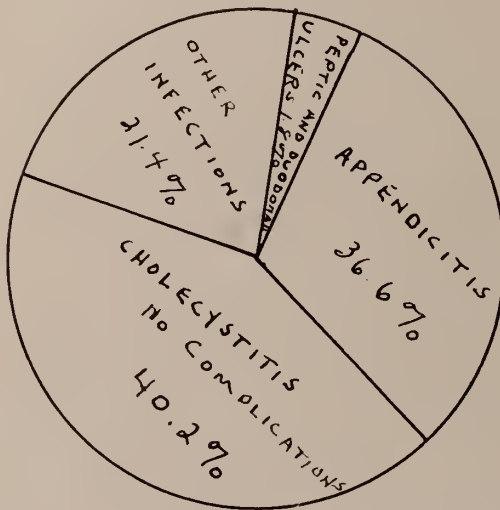


Chart 1. Showing relation between appendicitis and Cholecystitis and other types of infection.

symptoms at the time of study, 2 with a history of gastric hemorrhage previous to operations. Only 4 had had tonsillitis attacks; 2 of these had associated arthritis. In these experimental studies,

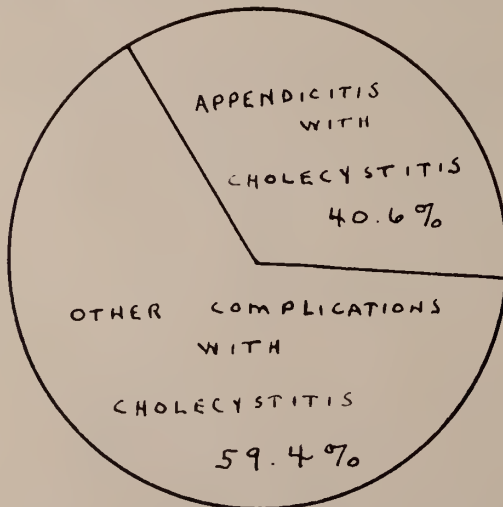


Chart 2. Showing relation between appendicitis with Cholecystitis and other complications with Cholecystitis.

of the streptococci there was a high incidence of affinity of the bacteria recovered for reinfection of the stomach and gall-bladder simultaneously; that is, 68% of gastric involvements with 21%

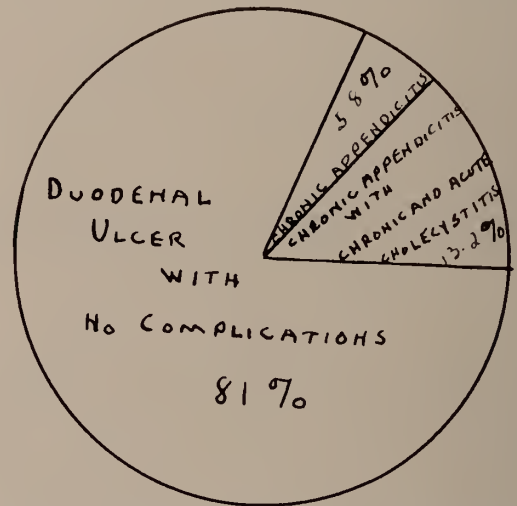


Chart 3. Showing relation between chronic appendicitis, chronic appendicitis and cholecystitis and Duodenal ulcer uncomplicated.

mechanically do not have a good natural means of healing or draining; that is appendix and gall-bladder.

Strains of streptococci removed from the ap-

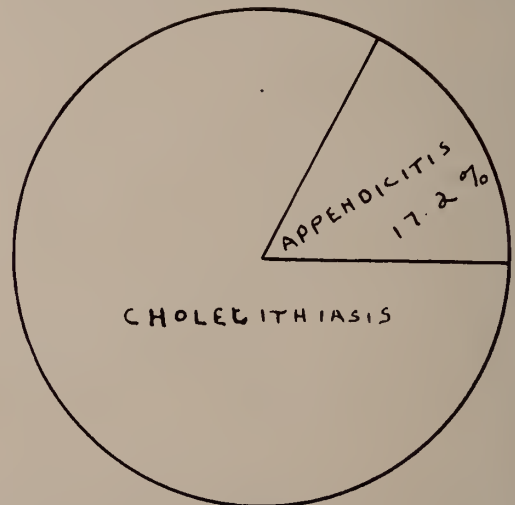


Chart 4. Showing relation between appendicitis and Cholelithiasis.

pendix in the Rosenow series and injected showed 79% animal appendices infected. The colon bacillus was also found in the gall-bladder and appendix cases, but was thought only the secondary factor in the diseases. Previous at-

tacks of appendicitis and gall-bladder diseases naturally disposes to acute attacks due to the mechanical factors such as fecal concretions, gall stones, and adhesions.

Brown,<sup>6</sup> Moody,<sup>7</sup> and Detweiler and Maitland<sup>8</sup> only corroborated the studies of Rosenow.

W. J. Mayo<sup>9</sup> in his Presidential address before the Ninth Annual Meeting of the Clinical Congress of the American College of Surgeons, states his observations, that there is a curious relationship between acute perforations of the gall-bladder and acute appendicitis. The gall-bladders usually contain stones and the appendices show evidences of former attacks. He states his belief that the most of these cases have their beginning of the acute attack in the appendix and extends through the portal circulations. The character of the pus and the organisms found bear him out in this contention, as they contain infecting organisms of the same morphological types.

A. Latham and T. Crisp English,<sup>10</sup> speak of the frequency of finding a chronic or subacute appendix when the abdomen has been laparotomized for other conditions, especially for diseases of the stomach, duodenum, gall-bladder and pelvic organs. It is generally agreed that if another organ is being operated upon, and there is no contraindication to an appendectomy, it is good surgery to removed the latter even though it be normal.

M. Poenaru,<sup>11</sup> Caplesco et Mlle. Eugenie Grossu cite 8 cases of conjunctival jaundice associated with acute appendicitis. At operation a hepatitis was found associated with the acute appendicitis. Their observations were that this was a sign of latent as well as acute appendicitis; latent gall-bladder and a blood-borne infection from the appendix to the liver and then by extension to the gall-bladder.

Rutherford,<sup>12</sup> R., cites an unusual case of associated gall-bladder infection with acute appendix in so far as the patient had no ascending colon. This anomaly is accounted for by the fact that the embryonic placement of the organs allowed the cecum to be placed at the hepatic flexure of the large bowel, appendix attached normally but in close approximation to the gall-bladder. The resultant infection to the appendix extended to the neighboring gall-bladder by direct extension.

Miller<sup>13</sup> gives a symposium on an associated

acute gall-bladder infection and acute appendix coming on the 5th day of the puerperium in which the initial lesion was traced to extraction of teeth 2 days previously.

Rivers and Hartman,<sup>14</sup> tabulate the associated conditions found after exploratory operations for cholecystitis and cholelithiasis showing the relationship to cases of subacute and chronic appendicitis. In a previous paper, they tabulated the results of abdominal exploration for gastric and duodenal ulcer, finding many conditions previously undiagnosed. Many of these overlooked conditions were so masked by the major symptoms that a misdiagnosis was easily attainable. The diagnosis in 287 cases of cholecystitis was made in this series, and operative interference instituted. The complications in these cases were charted diagrammatically with the resultant figures. The preoperative diagnosis being only cholecystitis, the cases with multiple diagnoses were excluded, to make the comparisons between cholecystitis and other pathology. For instance in the series of 287 cases; 31% were associated appendicitis; 26.9% subacute and chronic cholecystitis; 11% cholelithiasis and 18.9% associated hepatitis.

In the second series of 592 cases in which operations were undertaken for cholelithiasis, gallstones were present in 84.8%. In 28.9% chronic appendicitis was found; in 2.5% subacute appendicitis; in 12.7% hepatitis, and 7.8% pancreatitis. In this group, 15.2% of the cases previously diagnosed as cholelithiasis, no gallstones were found.

In a third group of 879 cases studied the preoperative diagnosis was gallstones or cholecystitis. The associated appendix pathology here was found to be 31.8%.

Statistics taken from the Woodlawn Hospital, Chicago, are given graphically in order to show the frequency of associated gall-bladder disease and appendicitis. In a group of 112 cases studied, chronic and acute cholecystitis were the preoperative diagnoses.

The pathology present as other infections included intestinal adhesions, myocarditis, pregnancy, toxic goiter, salphingitis, ovarian cyst, carcinoma, pneumonia, lues, colitis, cirrhosis of the liver, cholangitis, pancreatitis, bronchiectasis, and arthritis deformans. This gives a very representative picture of the relationship between cholecystitis and its affiliated pathology.



Next 297 cases were catalogued to show the correlation in percentage between gall-bladder and appendix pathology.

Forty and six-tenths (40.6%) per cent. of the 297 cases studied were associated with appendicitis; they being operated upon for cholecystitis and associated pathology found at operation.

In 68 cases of duodenal ulcer 4 cases or 5.8% were associated chronic appendix alone, with 13.2% chronic cholecystitis and appendicitis.

One hundred sixty-eight cases diagnosed as cholelithiasis were found to be accompanied with 29 chronic appendices. Chart 4 shows this graphically.

In 72 cases of peptic ulcer, cholecystitis was present in 3 or about 4.25% of the cases; chronic appendicitis, alone, was found in only 2 instances or in 2.8% of the cases.

#### SUMMARY

1. Four theories of gall-bladder disease and appendicitis are set forth by Charles Gordon Heyd, in which the infective emboli theory well fits the clinical association of cholecystitis and appendicitis.

2. Rosenow's research of bacterial injection into the blood stream indicates an especial predilection of bacteria for the various organs affected; that is, organisms cultured from the stomach ulcer cases when reinjected produced a preponderance of ulcer cases in the animal group injected. Same is true for gall-bladder and appendix infections.

3. W. J. Mayo states his clinical observations of the marked correlation of gall-bladder and appendix infections.

4. Latham and English also note clinical evidence similar to that of Mayo, while

5. M. Poenaru and associate give another clinical sign of chronic or subacute appendicitis, that is, conjunctival jaundice, caused by a concomitant hepatitis.

6. Direct extension of infection is noted especially in cases where the appendix lay in close proximity to the gall-bladder and more especially in acute and perforative types.

7. Other foci of infection are cited by Miller in so far as acute appendicitis and acute cholecystitis occurred on the fifth day post-partum after extraction of teeth two days previously.

8. Rivers and Hartman tabulate in per-

centage the associated diseases found in groups of 287, 592, and 879 cases operated on.

9. Statistics taken from Woodlawn Hospital show the relationship in percentage with cholecystitis and appendicitis; also in 112 cases the association between cholecystitis and other diseases. Forty and six-tenths per cent. of 297 cases diagnosed as cholecystitis were associated with appendicitis as compared with 31% in the Mayo series. Thirty-six and six-tenths (36.6%) per cent. in the first 112 cases showed appendicitis in conjunction with cholecystitis.

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#### SUDDEN DEATH AND SYPHILIS

It has been reported that approximately 10 percent of patients with cardiovascular syphilis die a cardiac death.

In 33 cases of sudden death, studied post-mortem, 6 showed syphilitic aortitis with coronary orifice constriction; 4 showed syphilitic aortitis with aneurism.

Cardiac syphilis means a syphilitic aortitis, which is usually confined to the arch of the aorta.—Dr. A. L. Briskman, in *Am. J. Syph.*, Oct., 1932.

## SOME EARLY MEDICAL HISTORY OF THE UPPER DESPLAINES VALLEY, ILLINOIS

CLARENCE A. EARLE, Ph. B., M. D.

DESPAINES, ILLINOIS

Many years ago I began collecting everything I could that had any bearing upon the early history of the locality in which I live, a limited part of the region of the upper Des Plaines Valley. It has resulted in the assemblage of many old photos and daguerrotypes, many monographs, contracts, deeds, passports, receipts, bills, and very many old letters or copies of letters dating back to 1833. A judge in the state of Washington who had lived here wrote me several hundred pages of early history. Obviously the subject matter of this paper is but an incident in the major research that has engaged my attention.

To me the collecting of early local history has been an intriguing pastime. I have unearthed interesting records from old attic trunks, from boxes in the lofts of out-houses, corn-cribs and garages. In the quest for early local history the word "failure" does not exist.

Robt. Collyer, the Unitarian preacher, published a biography of A. H. Conant who had resided two miles north of where I now live. Collyer quoted extensively from a diary that Conant had kept while living here. This diary contained almost daily entries from 1836 to 1841. The idea of getting this record possessed me. Conant moved from Des Plaines to Geneva. A visit there netted me a copy of Collyer's book but no diary. Conant enlisted as Chaplain of the 19th Illinois from Rockford, and died immediately after the battle of Stone River. At my first visit to Rockford I secured some daguerrotypes and many of Conant's war letters and sermons, but no diary. On my second visit to Rockford, I learned that when Conant's daughter went West she had left her household effects in the loft of a garage. I went through everything there, but still no diary. I returned home discouraged but undeterred.

On a third trip, I scoured the loft again but found nothing. Discouraged, I came downstairs and a boy repairing a car, pointed to a large box. Lifting an old oil painting, there was the leather bound diary in a perfect state of preservation! I turned this diary over to the Chicago Historical Society. They very kindly made me a copy. It might be interesting to you to learn that this

same A. H. Conant read a paper at the first meeting of the Chicago Historical Society. I dug out three letters in a little town in Washington that confirms this statement.

I am free to say that the training of a medical man is and should be the best possible preparation for one engaged in collecting local history. A medical man's status and his position in society gives him a distinct advantage over commercial makers of county histories. It goes without saying that he who does not hesitate to inquire into the venereal history of a person would not hesitate to peer into skeleton closets of the past. I wanted information as to the life of an early school teacher who later had killed a man in Minnesota. I located his wife in Connecticut. I wrote her and asked her for her husband's photo. She said I must be mistaken in the person, and of course she couldn't do anything for me. Before I got through, I not only got his history and his photo, but also her photograph.

I once made a trip to Northern Wisconsin to interview another pioneer school teacher. I rang the door bell. A highly neurotic daughter opened the door rather gingerly. To her, I announced my mission. She said her mother was an invalid, and had recently had a stroke and couldn't see anyone. I told her that I was a physician and I would see to it that no damage would result. She at once admitted me. I spent a very pleasant hour with the old lady, showed her a lot of photographs of her childhood friends and left her and her daughter in a happy mood, *after I had gotten what I wanted*. It has happened several times that I have been able to trade a little professional advice for a lot of early history.

In every age a few are born before their time. No one knows whether these anticipations are intuitive or philosophic. These few seem to understand the inadequacy of present day conditions and are able to visualize those needs of the future that the slow process of evolution takes years to bring about. Such an one was Dr. John A. Kennicott. He was born January 5, 1802, in Montgomery county, (now Fulton county), New York, and died June 4, 1863, at The Grove, Northfield Township, Illinois. His paternal ancestors descended from Roger Kennicott who came from Devonshire in 1660, and settled in Malden, Mass. Three of his lineal descendants were named John. The fourth, named Jona-



than, was the father of Dr. Kennicott. All had large families, of from six to fifteen children. This Jonathan married Jane McMillan, descendant of a widely known Jacobite family. They moved from Massachusetts to New York at an early date and had fifteen children.

The second child is the subject of this sketch. As a child he worked on the farm and orchard. According to his own statement, he attended primary school only thirty days. About 1823, he went to Buffalo where he studied medicine, taught district school, clerked in a drug store, and some of the time taking lectures at the medical college at Fairfield, New York, where he got his medical degree in 1826.

It may be interesting to learn something of this medical college located in the wilds of central New York in a village that in 1861 had but 500 inhabitants.

Fairfield Academy must have been organized in the late eighteenth century. In 1808, Fairfield Medical College was made an adjunct to Fairfield Academy. This institution was called also the College of Physicians and Surgeons of the Western District of New York. In 1810 the Legislature granted the college \$5,000, which had been the proceeds of a lottery. Feuds and jealousies among the Professors hindered the college's organization. However, at one time Fairfield stood next to the University of Pennsylvania in number of students. In 1820 an act of Legislature gave to Fairfield Medical College for dissection, the unclaimed bodies of the Auburn prison. Organization of the Geneva Medical College in 1835 and of the Albany Medical College in 1838 cut into the attendance of the Fairfield school to such an extent that with the session of 1839-40, it closed its doors. Not however until many distinguished men either had taught in or attended this school. Three of the Hadleys and Asa Gray attended Fairfield. Dr. N. S. Davis, Sr., was an alumnus.

It is altogether likely that Dr. Kennicott took up medicine mainly as a livelihood. Later in life he seems to have looked at it as a cultural study. In a letter in 1857 to his son, Charles, who was attending school in Buffalo, Dr. Kennicott writes, "It might not be amiss for you to accept the offer of your friends in Rush Medical College to attend a full course there some winter as a part of a good education for a pomologist, or rather a horticulturist. I think a course at Rush

would be both pleasant and profitable. I enjoyed the study of medicine very much." Immediately after graduation Dr. Kennicott wrote for the press in Buffalo and lectured on botany. He practiced medicine on the Welland Canal. In 1828 Dr. Kennicott visited Detroit, Mich., Sandusky, Columbus, and Cincinnati, Ohio; Louisville, Ky., and Natchez, Tenn.; spending some time at each place in botanizing. He lectured and practiced medicine near Jackson, Mississippi, for a while; after which he located in New Orleans, La. In 1830 Dr. Kennicott married Mary Shutts Ransom in Buffalo. In New Orleans, he was for a time principal of a primary school. He had charge of a male orphanage for one year. He is credited with having published the first literary, scientific and religious journal in New Orleans. This was called the "Louisiana Recorder."

In 1834 or 1835 Dr. Kennicott's father and brothers took up land 18 miles Northwest of Chicago on the stage route to Wisconsin, which is now Milwaukee Ave. This is undoubtedly why in 1836 Dr. Kennicott came to Cook County. At this time there were two other doctors in this locality; Dr. Silas Meacham, a lineal descendant of Miles Standish, and Dr. Fred Miner. Dr. Miner's father, Aaron, came with him from Vermont. He was a Revolutionary soldier, who died in Elk Grove, Cook County, in 1848, and was buried there. Eli Skinner, another soldier of the Revolution, came to this Yankee settlement and was buried in the same cemetery. Of the three Revolutionary soldiers who are known to be buried in Cook county, the remains of two lie in this little country burying ground about five miles west of Des Plaines. The third, the renowned David Kennison, was buried in Lincoln Park.

Although it is more than 150 years since the close of the war of the Revolution, there is still living, at this writing, one real son of that war,—William Constant Wheeler of Marshfield, Vermont. His father enlisted in 1780 when fourteen years of age and, when 76 years old, he married for the third time, and became the father of two children. William Constant is now 87 years old and in good health.

As soon as Dr. Kennicott got his log house up he started in the active practice of medicine. His daughter told me that his rides took him

as far north as Waukegan and as far south as Elgin. Some of the time he had five horses.

It has been difficult to learn much definite data of Dr. Kennicott's treatment of diseases. I have been informed that he did not believe much in emetics nor in blood letting; though he bled a younger brother three times who had meningitis. Mercury in the form of calomel, and mercury with chalk were common remedies for nearly everything. His daughter told me he treated diphtheria by cauterizing the throat with silver nitrate stick. The medicine case of the early doctor smelled strongly of rhubarb. He did only minor emergency surgery. He usually called in either Dr. Brainard or Dr. Freer for help. I have been unable to learn that he ever attended a medical meeting; yet he kept in contact with the best medical men of Chicago; Brainard, Freer, Herrick, Blaney and others.

Dr. Kennicott had made few professional calls when he began to plant trees, shrubs and flowers, particularly fruit trees. Early in the forties he started the Kennicott nurseries, probably the first in northern Illinois. A company still operates under that name. It is conceded that no one did more for fruit culture in the west than did Dr. Kennicott. He became the horticultural editor of the "Prairie Farmer" and, for a time, its editor. He was president of the Illinois State Horticultural Society, and secretary of the State Agricultural Society. He edited the first two volumes of this organization. He was the first president of the American Pomological Society which met in 1848. He seems to have been on intimate terms with many of the leading scientists, such as Kirtland of Cleveland, Latham of Milwaukee, Thomas and the two Downings of New York, and the thundering J. B. Turner of Jacksonville. Few did more than Dr. Kennicott to secure the final establishment of the U. S. Dept. of Agriculture. It is said that Zachary Taylor promised Kennicott that he would organize a separate Department of Agriculture if elected. Taylor's untimely death prevented this. Dr. Kennicott's name was prominently mentioned, even in eastern papers, as the logical head of this cabinet position should it be organized.

Dr. Kennicott was a busy country doctor, and his editorial and agricultural society connections must have taken much of his time. What I believe to have been his greatest work, was what he

did for real education in this country. Here was a great country with unlimited possibilities for agricultural and industrial development, yet about all that the colleges turned out were preachers and classical graduates. As late as 1850 Turner said that there were 269 classical schools in the U. S. and not one agricultural school worthy of the name, although the vast majority of people were farmers.

A letter written in 1838 by my father, who was attending an academy in Vermont, states that he "is studying Greek, Latin and French," and apparently not taking English. While the classics are not stressed as much as formerly, in my opinion more time in school should be given to the study of English, of modern languages and of the natural sciences. I was a member of a High School Board for twenty-two years. I recall with dismay a farmer boy who, through the advice of a classically trained principal, studied Latin four years. For four years this boy walked three miles night and morning, putting in one fourth of his time to a study that touched his daily life less than a falling star. Intrenched behind the practices and traditions of ages, coupled with the greed, envy and jealousy of sectarianism, the academies and colleges of the day presented a formidable obstacle to the establishment of any but classical schools. Though many undoubtedly recognized the inadequacy of scholastic education, few had the temerity to defend a more useful training. Of those who fought for the newer education, the name of the impoverished but militant Jonathan B. Turner outshines all the rest.

At that memorable Farmers' Convention meeting at Granville, Illinois, in September 1851, Turner suggested the plan of an industrial University in each state. The following March Turner announced for the first time the idea of national grants of land for the foundation and support of State Industrial Universities. It took eleven years to get this idea through Congress under what is known as The Morrill Bill.

This eleven year period of gestation that it took to enact this legislation was a stormy period. Into the fight, the enthusiastic Dr. Kennicott threw the full force of his persuasive personality and energy. His trenchant pen never dried, in his advocacy of the newer education. Several conventions were called in Illinois to discuss the merits of this new idea. Dr. Kennicott



was a most prominent and influential member as well as the chairman of most of the meetings. The Illinois Legislature was influenced to memorialize Congress. All over the country papers took up the "Illinois Idea" as did many legislatures. Dr. Kennicott spent much time lobbying in Springfield while the legislature was in session. On one such trip he had to borrow money from the governor to pay his bills and to buy a ticket home!

In 1857 Senator Morrill introduced this Land Grant Bill into the Senate. Kennicott made trips to Washington in the interest of this bill. I have records of his interviews with the log rolling, selfish members of Congress. Buchanan vetoed the bill. It finally became a law when Lincoln signed the act in 1862.

Sixty-nine colleges and universities have been benefited by this act of Congress. I have given some of the history of this legislation, first, because in my opinion, next to the act of 1787, this Land Grant Act stands as the greatest potential stroke for education ever enacted. Second, though the concrete idea was suggested by Turner and introduced into Congress by Morrill, its final enactment in my opinion was in a large measure due to that persistent, indomitable country doctor, John A. Kennicott.

In politics Dr. Kennicott was a Whig. In religion he was a liberal. There are no records that he ever attended church. Robert Collyer, the Unitarian preacher, officiated at an early funeral of one of the family. Dr. Kennicott was the father of five boys and two girls. All have passed away. It was my pleasure to know all except the two older boys. Kennicott's most noted child was Robert, a distinguished naturalist. The history of the classification of the fauna of this country can never be complete without mention of his work.

Dr. Kennicott was not above five feet five inches in height, and was very stoop shouldered. His face was seamed with deep lines. His eyes beamed with expression and flashed with each new thought. In any assemblage he would attract attention. He had the gift of friendliness and hospitality, but when occasion arose he could be a doughty opponent. He loved youth and youth turned to him with intuitive trust. He fought many battles for causes and for friends, but never for his own advantage. Geniality was one of his most marked characteristics. This is

evident even in his grandchildren. Dr. Kennicott was a loyal friend. His innate courtesy and charm of manner made him approachable by all whom he chanced to meet. He had traveled much. He attended many public gatherings in his own state, and in other states. His home was a meeting place for leaders in the natural sciences and in medicine. His procedures were direct. He was as transparent as a child. There never was a doubt as to his convictions, and he hated double-dealing in others. The selfish ax-grinding politicians excited Dr. Kennicott's unmitigated disgust. He was an idealist who pursued realism.

Literally Dr. Kennicott died in his boots. Powell's history states that "a call was issued during the latter part of May, 1863, for the Sixth Industrial Convention to meet in Springfield, on June 9, 1863. This call was signed by twelve well known leaders, headed by the enthusiastic Dr. Kennicott." But the "Old Doctor" was not there to answer the call. He had passed away on June 4. On May 23, 1863, eleven days before his death, Dr. Kennicott wrote to his old friend Col. Hodge of Buffalo. Probably this was the last letter Kennicott ever wrote. It is so expressive that I shall give it:

"My dear old Friend: Are you still alive? I still live but scarcely breathe. For two months I have been at death's door with laryngitis complicated with heart disease, etc. and lately with rheumatic pains in the chest. Dr. Freer attended me first and I expect him and Dr. Brainard out tomorrow. It was thought I could not live, as I breathe with great difficulty, and often have to sit up 20 hours in the 24, as I suffocate if recumbent. The worst is I can't eat nor exercise. I now write for the first time in two weeks. I have been up since half past three A.M. I now write at six A.M. Very warm. Let me hear from you. I may suffer for this imprudence. But you and I should not neglect each other while we can hold a pen. I trust you do not suffer as I have of late. I have wished for death more than once, but I don't want to die if I have any chance of being comfortable again, and I seem to stand a heap of killing. Strange how much a man can live through. God be with you."

"Your old friend the Old Doctor."

As the years roll, as wealth increases, as urbanization of the prairies proceeds and the

haunts of the deer and other wild game are cut up by miles of hard smooth roads, I see a tendency to exaggerate the trials and vexations of the Pioneer Country Doctor. My father was a country doctor. My own professional life in a rural community reaches back nearly half a century. I have gone through the horseback, the two-wheeled cart and the buggy age of a country practice. Even so they were safer if not pleasanter hours than I now experience in going over the same territory in my car. In the early days I was summoned in person by a messenger whom I knew. I knew the people who desired my services. If I had any money in my pocket I never thought of leaving it when called out at night. The Pioneer Doctor never feared being robbed, kidnapped, or murdered when making a night call. I might get a leg scratched riding along a hedge row or my horse might stumble but that was nothing compared to being run into by a drunken driver nowadays. One could catch naps riding behind a faithful horse. I never dozed but once in my car. When I awoke I was in a ditch. I do not wish to minimize the hardships of the Pioneer Country Doctor for they were many. Nor do I desire to detract from the halo of glory and glamor that a generous posterity has accorded him, but as I see it human nature was the same in the early days as now. The problems of life were similar and are met today with the same spirit of helpfulness and earnestness of purpose—if not quite the fortitude—as in the days of yore.

### SOME IMPORTANT USES AND ABUSES OF THE ELECTROCARDIOGRAM IN HEART DISEASE

CLAYTON J. LUNDY, M. D.

CHICAGO

The main purpose of this paper is to point out certain abuses of this aid to diagnosis and to emphasize its value in the most common forms of heart disease. No attempt is made to cover the subject in its entirety.

It seems to me that an unfortunate situation exists in that diagnoses are most often made by men who do not see the patient. There are two

points of view to be considered in this regard. It is true that the present arrangement makes unprejudiced opinion possible. For certain conditions this is 100% satisfactory, as in the case of the diagnosis of the types of certain arrhythmias, the several kinds of heart block, and in the differentiation of the various types of dextrocardia.

However, it is generally conceded that clinical findings, a careful history, and other laboratory measures are indispensable for the proper evaluation of the electrocardiogram. That this is true is substantiated by the fact that probably more than 75% of the electrocardiographic findings in coronary disease may be duplicated in other conditions.

The ideal situation, which eventually must come, is for all doctors doing medical work to spend a little time and secure a working knowledge of the subject. He should use all the laboratory aids which we now have and he will be surprised at the ease with which he may familiarize himself with the rather limited nomenclature of the electrocardiogram. The movies shown you tonight illustrate what is being done to educate the general practitioner in electrocardiography, and shows the training in this subject received by our medical students.

Another, and a very important abuse, is that the electrocardiogram is all too often used to take the place of a thorough physical examination. As a result it is used to determine cardiac functional capacity, which should be determined by other more important tests and observations, and which is based only in part upon the electrocardiogram. This mistake leads to the undeserved criticism of the electrocardiographic diagnosis of myocardial damage (we might call this undeserved abuse heaped upon the electrocardiogram) because it does not fit in with the clinical picture. Electrocardiographic diagnosis of myocardial damage represents structural changes which impair cardiac function more or less, according to the degree of damage. Often, however, cardiac function is interfered with, more or less, according to the location of that damage. In evaluating electrocardiographic evidence, therefore, both of these variable quantities must be considered. One example is that in coronary thrombosis with infarction of the thin wall of the cardiac apex, the damage impairs cardiac function more seriously than does a similar area

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Read in part before the Chicago Medical Society, December 11, 1935 and the American Heart Association, June, 1935, at Atlantic City, N. J.



of infarction in the thick posterior wall of the left ventricle, yet T wave inversions may be the only sign in both instances. Another example is that marked widening and notching of the QRS complex in one case may indicate serious widespread myocardial damage, whereas, in another case it might only indicate localized injury to a branch of the ventricular conduction system and interference with cardiac function only in a limited way by comparison. These situations are differentiated by clinical examination, and by the use of other laboratory measures. It can be emphasized, therefore that cardiac functional capacity does not always parallel electrocardiographic evidence of damage.

A few examples of other abuses are illustrated by the following instances: An electrocardiogram showed evidence of acute rheumatic fever and the doctor in charge of the patient shook his head, frowned, and said: "Gosh, I hate to put him to bed as long as that will require." His attitude appeared to be that he was defending the patient against the electrocardiographic diagnosis. I should have considered it more helpful to the patient if he had said that the electrocardiographic information did or did not fit in with a clinical picture of active rheumatic fever, and whether or not it was correlated with other laboratory signs, or with the history, or with the physical examination.

Another doctor was concerned because the electrocardiogram of a patient did not show auricular hypertrophy, since the patient had mitral stenosis. This doctor expected the electrocardiogram to confirm his clinical diagnosis, whereas, it is known that less than one-third of the cases of mitral stenosis and regurgitation show electrocardiographic evidence of auricular hypertrophy, and those are in the later stages of the condition.

In another instance an electrocardiogram was diagnosed coronary thrombosis and as a result the patient was refused a life insurance policy for a considerable amount. This electrocardiogram had been taken with the arm lead electrodes reversed, and the excellent cardiologist who made the diagnosis didn't notice the error and based his opinion upon inverted T waves in the first lead. The last I heard of this situation was that the patient grew too old to be insurable while waiting for the insurance company to give him a clean bill of health.

There are other abuses of this invaluable laboratory procedure and I am sure that many of you have had interesting experiences of your own. However, in spite of all these failures, electrocardiography is becoming more and more important and I believe that some day it will become as routine a measure as the blood count and urinalysis.

The electrocardiogram is useful in all phases of the management of heart disease. In diagnosis, mention has been made of its value in certain types of arrhythmias, heart block, and dextrocardia. Primarily, the electrocardiogram is of value in determining the presence or absence of heart disease. I repeat that it is an aid to clinical diagnosis and not a court of last resort to be appealed to for the name to be applied to the type of heart disease which is had by the patient. In syphilitic heart disease, in hypertensive heart disease, and in thyroid heart disease electrocardiographic evidence is not characteristic. It is true that auricular fibrillation is often found in hyperthyroidism, but it is by no means exclusively associated with that type of heart disease. Of course, mention must be made of the value of the electrocardiograph as a research instrument.

Rheumatic fever lays the foundation for more than half the cases of heart disease, while arteriosclerosis accounts for about 25%. I shall confine my remarks about the use of the electrocardiogram to these two types of heart disease and especially in the early stages of rheumatic heart disease.

The early diagnosis of rheumatic heart disease is imperative if we ever expect to diminish the mortality from heart disease. In its pure form rheumatic fever is encountered most often in children between the ages of five years and on up to young adult life. The vagueness of the clinical signs make it important that every diagnostic aid be used to the uttermost. It is here that the electrocardiogram serves one of its most important and most sadly neglected functions. Associated with primary attacks of rheumatic fever at about the time of, and often before an indefinite or suspected heart murmur occurs, the electrocardiogram may show evidence of this disease. Some of these changes are transitory (as in the case of J. A., who had a prolonged PR interval following an acute polyarthritis at the age of 17). With prolonged bed-rest, the PR interval

returned to normal many weeks after the clinical symptoms had disappeared. Cardiac irritability was not markedly pronounced, sedimentation rate was normal, a systolic murmur loudest in the pulmonic area was very faint, and with the boy feeling perfectly well he was unable to understand why he was confined to bed for so long. With the tangible proof afforded by the electrocardiogram in this case, clinical judgment was reinforced and full cooperation was more easily secured. While it is true that more simple infections are reported to be associated with similar electrocardiographic changes, and while such instances often do not produce permanent cardiac damage, the possibility of dealing with heart disease of infectious origin, i.e., non-rheumatic, is sufficiently important to warrant treatment upon the same basis as if it were rheumatic heart disease.

Other electrocardiographic changes associated with rheumatic fever are slurring of the QRS wave, elevation or depression of the ST interval, and upright cove shaped as well as inverted T waves. All of these changes are seen in the ordinary three leads. These are not specific, yet I would call your attention especially to the ST interval deviations. Later you will be shown how these changes represent "Current of Injury" due to heart muscle damage. For about four years I have been observing slight ST interval deviations in the three ordinary leads, in people afflicted with rheumatic heart disease. It finally has been forced upon me that in most instances this change represents injury to heart muscle in children just as much as it does in the adult with coronary occlusion. The exceptions to this rule may be in the case of digitalis administration, or with marked long standing, or severe valvular defects, or with marked tachycardia, or in other conditions which change cardiodynamic balance. While they may be exceptions, I believe that those conditions produce a current of injury to cardiac musculature, just the same as in rheumatic heart disease or in coronary disease. The difference is that the injury takes place less abruptly by the gradual stretching of the heart muscle cells, or by unnatural work strain on the heart muscle cells in contradistinction to the active inflammatory condition of the heart muscle in certain cases of rheumatic and infectious heart disease and the ischemia or anoxemia in coronary disease.

In a recent study of 52 control cases it was found that the ST interval in the fourth lead was elevated in the normal new-born and that the T wave was upright. At about 12 or 16 years of age most children have an iso-electric or depressed ST interval and an inverted T wave in lead four. In another study of 19 children under 16 years of age with symptoms suggestive of rheumatic fever but before a demonstrable valvular lesion occurred (that is, in the pre-endocarditis stage of rheumatic fever), these changes take place earlier than usual.

In a third study of 118 patients up to 16 years of age and with frank rheumatic heart disease and with varying grades of mitral stenosis and regurgitation and cardiac hypertrophy, it was found that there was a reversal of the trend observed in the suspect pre-endocarditis group. With cardiac hypertrophy and mitral stenosis the fourth lead retains the characteristics of that observed in the new-born. It might have been that the electrocardiogram went through the usual changes and then returned to the type observed in the new-born, with an upright T wave and an iso-electric or elevated ST interval in the fourth lead.

The explanation for this observation, I suspect, is that mitral stenosis results in a strain upon or hypertrophy of the right ventricle. New-borns have a relative hypertrophy of the right ventricle or underdevelopment of the left ventricle which persists from three to four years. I feel that observations in this young age group is rather trustworthy because these children have not lived long enough to have complicating factors which would give a mixed etiology for the change. I feel that a tangible sign similar to the one described is of value in aiding the diagnosis of this most important type of heart disease.

These observations are reported to you in order to bring to you a new application of old electrocardiographic signs. I would again emphasize that most of the abnormal electrocardiographic findings discussed are merely signs of myocardial damage and not characteristic of rheumatic heart disease specifically. They are strong evidence in favor of its existence in the presence of suspicious clinical history and physical findings.

The great value of the electrocardiogram in the diagnosis of arteriosclerotic heart disease is widely known. The more clear cut the clinical



picture, the more definite are the electrocardiographic signs. Now, however, many instances of symptomless coronary thrombosis are being reported. It is only recently that we have satisfied ourselves that angina pectoris in most instances is due to inadequate blood supply through the coronary arteries. In a recent study of 888 cases of angina pectoris and arteriosclerotic heart disease, 79% were found to have had electrocardiographic findings compatible with coronary disease. Fifty-nine per cent. of these (526 cases) had that evidence in the three ordinary leads. Twenty per cent (182 cases) had that evidence in the recently used fourth or chest lead.

The electrocardiographic diagnosis of coronary disease is based upon five cardinal points: 1. Prolonged PR interval and higher grades of heart block indicating damage of the septum somewhere between the auricles and ventricles. 2. Widened QRS complex, indicating damage to the ventricular musculature. 3. Widened or prominent Q waves as described by Wilson. 4. Deviation of the ST interval above or below the base line, indicating "Current of Injury" to the ventricular musculature, and 5. T wave inversions which also indicate ventricular damage. These changes may be of all degrees, pronounced, or minimal.

Often electrocardiographic evidence appears early and disappears promptly. These cases may be associated with spasm of coronary arteries and leave no electrocardiographic sign. In other instances electrocardiographic signs may appear late, as in cases of slowly progressing thrombosis. In all cases signs may appear in one lead before they do in another. It has been frequently observed that the fourth lead changes occur earlier in cases of infarction of the anterior wall of the left ventricle and that the ordinary leads show changes earlier when posterior wall infarctions occur. In doubtful cases several electrocardiograms may be needed to secure evidence in order to confirm the diagnosis.

An interesting observation has been made (A. R. Barnes of Mayo's) in the study of coronary thrombosis, and this has been that with single infarctions of the apex or anterior wall of the left ventricle the T waves in leads one and two are inverted. The prognosis of this type is said to be less favorable than when an infarction of comparable size takes place in the pos-

terior wall of the left ventricle. This latter type is differentiated from the former by having the T waves inverted in leads two and three.

In coronary thrombosis a very important bit of knowledge is to be gained by the use of electrocardiograms to follow the course of healing of the area of infarction. In small areas the electrocardiogram can be seen to return to normal. In these circumstances we may be guided in our advice to the patient regarding the restriction of his activity. It should again be emphasized that this information acts as an aid to the clinical observations on the patient.

It should be mentioned also that the electrocardiogram is of further value in the treatment of patients with all types of heart disease. A very helpful instance is that of electrocardiographic signs of over-digitilization. These are: 1. Depressed ST intervals. 2. Coupled beats. 3. Various grades of heart block, and 4. Various types of tachycardias. These signs are of special benefit in the treatment of elderly people with advanced heart disease of mixed etiology and with greatly enlarged hearts. They do not tolerate large doses of digitalis.

In prognosis, the electrocardiogram is also helpful. When considering the site of origin of tachycardias it is known that those of ventricular origin are more serious than those which arise above the ventricles in the A-V node or in the auricles. Mention was made about the poorer prognosis of infarction of the anterior wall as compared with that of the posterior basal portion of the left ventricle. It is also true that the electrocardiogram gives evidence of cardiac infarction over widespread areas as compared with those of limited area. These have, occurring simultaneously, more of the signs mentioned above and the individual signs may be more pronounced. In this way the existence of spreading of the infarcted or insufficiently nourished area may indicate that the prognosis is getting grave; whereas, if the healing process is depicted by the return of the electrocardiogram to normal, the prognosis, of course, is good.

It must be mentioned that the electrocardiographic signs found in many types of heart disease are similar to each other and are differentiated by the use of clinical judgment. You have been shown that the ST interval deviations and T wave changes mean most commonly: 1. Coronary disease with infarction of the many degrees

of damage that variations of this condition may produce; or 2. Myocarditis due to rheumatic fever or other infection. 3. They may mean digitalis effects. 4. They may also be found in the presence of aortic regurgitation with and without mitral stenosis, and 5. In certain congenital cardiac conditions. It is also very important to know that four extracardiac conditions may cause similar changes. These are pulmonary embolism or thrombosis, spontaneous pneumothorax, and pericardial effusion. The shock and physical findings in these conditions often make differentiation rather difficult.

Some people stress the desirability of periodic electrocardiograms and they may have their value. Certainly it must be admitted that the electrocardiogram does give evidence of myocardial damage, and that it gives this evidence in a tangible way. I don't see how a case of suspect heart disease can be properly analyzed without one. Certain types of changes, as you have seen, are associated with certain types of heart disease. It is hoped that the discussion of these relationships will demonstrate the value of associating several etiological factors with these various electrocardiographic findings, and thereby facilitate the proper correlation of the clinical picture, permitting accurate diagnosis, proper treatment, and result in a lower mortality from heart disease.

## A TROCAR WITH PERFORATIONS

MEYER M. MARBEL, M. D.

CHICAGO

The illustration is of an abdominal trocar with multiple perforations on the sides of its cannula. Rows of perforations were made on four sides to about two inches from its open end. When-

deeper down intra-abdominally and the flow is promptly reestablished through the side perforations on the cannula without disturbing the patient by turning him. Its use has proved to be very satisfactory, much more than a cannula without perforations, when tried on cases.

The following might be of interest: Several old trocars that have seen service for ten or fif-

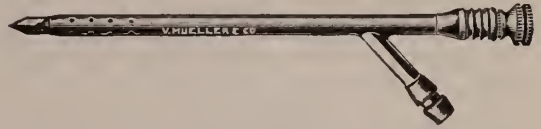


Fig. 2—The Ochsner gall bladder drain on which cannula perforations were made and served as a handy abdominal trocar with a good grip, leaving a small quickly healing wound after the weekly abdominal tapings.

N. B.—The perforated abdominal trocar should not be confused with other perforated drain instruments such as the tonsillar aspirating attachment or the suprapubic bladder drain or the brain or peritoneal aspirators, as they have sometimes patent main opening.

teen years have been taken to some surgical instrument house to have perforations made on every cannula, so as to have a variety of sizes as the first one has shown satisfactory use after several trials. Some of the attendants expressed great satisfaction with this new or original change in the abdominal trocar, as they have never seen such improvement in this instrument. To substantiate their statement, they produced various catalogs from foreign countries where the foremost surgical instrument makers have not had for decades abdominal trocars with perforations among the numerous illustrations of their highly decorated and oversized catalogs.

From the top floors of the building, an elderly gentlemen came down, past seventy years old, who has been making doctor's instruments since



Fig. 1—The ordinary abdominal trocar generally used and has only one main opening. When many openings were made on its cannula for about two inches from its open end blockage of the ascitic flow has not happened again, turning of the patient was unnecessary, nor was it necessary to do a second paracentesis at some other point and the abdominal fluid was fully drained in a shorter time without any extra effort on the part of the attending doctor.

ever a sudden stoppage to the ascitic flow takes place during an abdominal paracentesis on account of blockage by an abdominal viscus, all one does it to push the cannula about one inch

his boyhood days, and at present is compiling a history of doctors' instruments, so they say. His Van Dyke beard, his cutaway clothes, and his general appearance reminded one much of the



late Professor Doctor Paul Erlich, discoverer of 606. He said that he had never seen anything like it. But . . . "Someone must have thought of it years before" . . . The simplicity of the change, the sage thought, is the greatness of its usefulness. Finally it was decided to describe this illustration in public prints: perhaps through this medium we may locate its first possible originator, provided such improvement has ever been published by anyone in years gone by. If priority can thus be established, this instrument with its improvement shall bear the name of its first originator and credit him to whom credit is due. Should there be no reply within three years from date of this publication on improvement in abdominal trocar, it shall become public property for the benefit of patients and doctors. Just another trocar, one-half of which is perforated.

#### MORTALITY STATISTICS OF INJECTION WITH NEOARSPHENAMINE AND INJECTION OF VARICOSE VEINS

The mortality statistics of neoarsphenamine injections as compared with fatalities following the injection treatment of varicose veins are difficult to interpret. The arsphenamine mortality has been analyzed by Stokes (Modern Clinical Syphilology, ed. 2, Philadelphia, W. B. Saunders Company, 1934). He gives the following summary of statistics:

Year	Author	Infections
1910-1913	Leredde and Jamin .....	1:3,777
1911-1914	Nichols .....	1:5,000
1914-1918	British Base Hospital No. 39.....	1:8,000
1917-1919	Guy (United States Army).....	1:12,500
1920	Meirowsky (European statistics) .....	1:11,289
1920	Meirowsky arsphenamine .....	1:13,000
1920	Meirowsky neoarsphenamine .....	1:32,550
1920	Meirowsky death rate under 0.6 Gm....	1:162,800
1920	Meirowsky death rate over 0.6 Gm....	1:3,000
1916-1924	Section of Dermatology (Mayo Clinic)	1:21,000
1919-1927	United States Navy.....	1:17,526
1925-1931	University of Pennsylvania.....	1:33,600

The average risk of death (avoidable and unavoidable) ranges according to these figures between 1:7,000 and 1:11,000.

The unavoidable risk of death ranges between 1:56,000 and 1:162,000. Good performance is estimated by Stokes at from 1:15,000 to 1:35,000, depending on material, system and dosage.

It is difficult to differentiate between avoidable and unavoidable deaths. The administration of arsphenamine to a patient with an obvious contraindication may result in death not from the drug but from its improper use.

The mortality statistics from varicose vein injections have never been submitted to such a searching scrutiny

as those due to arsphenamine. McPheeters reported a death rate of approximately 1:5,000; Kettel estimated the total mortality as 1:3,000. It must be emphasized that these figures represent the number of patients and not the number of injections.—*J. M. A.*

#### COBRA VENOM STOPS PAIN BUT IS NOT HABIT-FORMING

Cobra venom, in doses too small to be poisonous, relieves pain as effectively as morphine. But the venom of the death-dealing serpent is not habit-forming when given to relieve pain, as morphine is, and it does not produce the disagreeable and dangerous by-effects of the narcotic drug.

Experiments with cobra venom on laboratory animals and human patients, including a hundred sufferers from cancer in its late stages, were reported by Dr. David I. Macht, director of Pharmacological Research Laboratory, Hynson, Westcott and Dunning, Baltimore, at the meeting of the National Academy of Sciences. Dr. Macht was formerly lecturer in pharmacology at the Johns Hopkins Medical School.

Seventy-five of the cancer sufferers had their pain relieved by doses of cobra venom injected into the muscles, Dr. Macht reported.

The snake venom checks pain by acting on the higher nerve centers in the brain, he found from psychological and pharmacological studies.—*Science News-Letter.*

#### DIOXYANTHRANOL 1-8 AS A SUBSTITUTE FOR CHRYSAROBIN

Herman Beerman, Philadelphia; George V. Kulchar, San Francisco; Donald M. Pillsbury and John H. Stokes, Philadelphia (*Journal A. M. A.*, Jan. 5, 1935), find that dioxyanthranol 1-8, which may be considered as chrysarobin without the methyl group, is an effective drug and a desirable substitute for chrysarobin in conditions in which chrysarobin has heretofore held the field. It is usable in low concentrations (from 0.1 to 1.0 per cent), and when thus employed gives rise to no constitutional symptoms, does not produce extensive dermatitis, produces comparatively little discoloration of the clothing, and may be used on the scalp without serious discoloration of the hair and on the face without producing conjunctivitis. The European literature on this drug is extensive, in general favorable, and in such extensive reports as those of Kromayer (600 cases), enthusiastic. The authors' experience with it indicates that it produced involution of inveterate psoriasis when a wide variety of other forms of treatment, including that with chrysarobin, had failed. This is especially true of psoriasis of the scalp. In a series of fifty patients unaffected by previous treatment over a long period of time, 82 per cent had good results averaging 60 per cent involution or better, within from one week to four months, and 46 per cent were completely cleared within this period. Seven relapses observed indicate that treatment should be prolonged considerably beyond the disappear-

ance of the last lesion for the most lasting effect. Mild dermatitis, mild folliculitis and slight pigmentation are produced occasionally. No albuminuria and no conjunctivitis were observed. Pruritus, associated with psoriasis, was relieved in a number of cases. In fungous infections of the skin the effect of the drug is second to that in psoriasis, according to European authors. In alopecia areata, pityriasis rosea, sycosis barbae (superficial), seborrheic processes and a variety of other conditions favorable results have been reported. Its action on the mycoses and alopecia areata is favorable. Dioxanthanol 1-8 is not proposed as a new drug nor one completely free from the objections familiar in the use of chrysarobin. It is none the less, the authors believe, a superior substitute which deserves greater popularity now that it is available in this country.

## Society Proceedings

### COOK COUNTY CHICAGO MEDICAL SOCIETY

*Wednesday, March 4, 1936*

#### ANESTHESIAS

Inhalation Anesthesia: Volatile ether—Divinyl ether; Gaseous—nitrous oxide; Ethylene; Cyclopropane; including intratracheal administration—Ralph M. Waters, A. M., M. D., Prof. of Anesthesia, University of Wisconsin.

Intravenous—Evipal Sodium; Panothal Sodium.

Rectal—Colonic ether; Avertin.

Regional Methods—Spinal, Sacral, Cervical. Preliminary medication for each agent and method will also be discussed—John S. Lundy, A. B., M. D., Professor of Anesthesia, Mayo Foundation, University of Minnesota Graduate School.

Discussion—Arno B. Luckhardt, M. D., Emil Ries, M. D., Isabella C. Herb, M. D., Paul B. Magnuson, M. D., Eric Oldberg, M. D., Frederick Lieberthal, M. D.

*Wednesday, March 11, 1936*

Symposium on Cancer of the Colon and Rectum:

Early Diagnosis—Leon Bloch.

Surgery of the Colon—Vernon David.

Surgery of the Rectum—Charles B. Puestow.

Discussion—Fred M. Drennan, Clement Martin, Carl B. Davis, Karl Meyer, Siegfried Strauss.

*Wednesday, March 18, 1936*

Symposium on Arterial Diseases of the Extremities: Symptomatology and Diagnosis: Arteriosclerosis, Thermic Gangrene—Diabetes, Bueger's Disease, Raynaud's Disease—Samuel Perlow.

Conservative Therapy—Frank V. Theis.

Surgical Therapy—Sympathetic Ganglionectomy, Embolectomy, Peripheral and Paravertebral Nerve Block, Intraspinal Alcohol, Amputation—G. de Takats.

Discussion—Carl W. Apfelbach, Robert Keeton, Adrien Verbrugghen.

## Marriages

EDGAR L. AABERG, Peoria Heights, Ill., to Miss Jean Littlejohn of Springfield in December, 1935.

JAMES T. BLAKELY to Mrs. Helen Vernon Fawley, both of Fairfield, Ill., in Paducah, Ky., January 19.

WILLIAM M. COVODE, Chicago, to Miss Eleanor Lindquist of Webster, Wis., February 20.

## Personals

Dr. Ernest A. Pribram, Chicago, addressed the Will-Grundy County Medical Society, March 11, on "Blood Transfusion."

At a meeting of the Union County Medical Society, March 12, Dr. Edward J. Stieglitz, Chicago, discussed "Nephritis—Functional Considerations in Treatment."

At a meeting of the Chicago Roentgen Society, March 12, speakers included Drs. Dallas B. Phemister on "Calcium Carbonate in Cholelithiasis."

Dr. Nathaniel G. Alcock, Iowa City, addressed the Peoria City Medical Society, March 3, on "Malignancy of the Urinary Tract."

Dr. Harry E. Mock, Chicago, discussed skull fractures before the Whiteside County Medical Society in Sterling, February 20.

Dr. James H. Hutton, Chicago, addressed the Champaign County Medical Society, February 13, on "Gland Therapy and Hypertension."

Dr. Martin F. Engman, St. Louis, discussed the subject of eczema before the Madison County Medical Society, Granite City, February 7.

Dr. Leon Unger, Chicago, among others, addressed the Will-Grundy Medical Society, February 19, on "Recent Advances in the Study of Allergic Conditions."

At a meeting of the Chicago Society of Internal Medicine, February 24, Dr. Edmund Jacobson, among others, spoke on "The Influence of Skeletal Muscle Tension on Blood Pressure."

Dr. Chauncey C. Maher, Chicago, discussed "Hypertensive Vascular Disease" before the Adams County Medical Society in Quincy, March 9.



Dr. Isaac A. Abt, Chicago, discussed "Management of the Infant During the First Three Months of Life" before the Decatur Medical Society, February 18.

Dr. Jerome R. Head, among others, addressed the Chicago Pediatric Society, February 18, on "Posture in the Etiology, Prophylaxis and Treatment of Diseases of the Lung."

Dr. Russell D. Herrold discussed "Environmental Altered Gonococcal Forms and the Probable Mechanism of Cure in Gonorrhea," among other speakers before the Chicago Urological Society, February 27.

Dr. Hugh Cabot, Rochester, Minn., delivered the eighth annual Stephen Walter Ranson Lecture at Northwestern University School of Medicine, February 25, on "The Changing Practice of Medicine."

The Chicago Laryngological and Otological Society was addressed, March 2, by Dr. Louis Z. Fishman on "Bilateral Spastic Adductor or Flaccid Abductor Paralysis of the Larynx."

Dr. Earl R. Carlson, New York, addressed a joint meeting of the Jane A. Neil Club and the Chicago Orthopaedic Society, March 4, on "Treatment of the Spastic Child."

Dr. Anton J. Carlson gave an address at a meeting of the Cook County League of Women Voters in the Palmer House, March 14, entitled "Buyers Beware! The New Food and Drug Act: A Test in Consumer Effectiveness."

At a meeting of the LaSalle County Medical Society in LaSalle, February 26, speakers were Drs. Edward A. Roling, Chicago, on "Eye Conditions of Interest to the General Practitioner"; Tell Nelson, Chicago, "Diagnosis of Allergic Conditions," and Edward G. Tatge, Evanston, "Allergy in General Practice."

Dr. Charles C. Higgins, Cleveland, addressed the Chicago Urological Society, March 26, on "Experimental Production and Solution of Urinary Calculi with Clinical Application and End Results."

The Chicago Pathological Society was addressed, among others, March 9, by Noel Paul Hudson, Ph.D., Columbus, Ohio, and Enid A. Cook, A.B., of the department of bacteriology, University of Chicago, on "Relation of the Herpes Antiviral Power of the Blood to Sex, Pregnancy and Menstruation."

At a meeting of the Chicago Ophthalmological Society, March 16, Dr. Edward V. L. Brown spoke on "Apparent Increases in Hyperopia Up to the Age of Nine," and Drs. Thomas D. Allen and Sanford R. Gifford discussed "Surgical Treatment of Retinal Detachment."

Among others, Dr. Henry W. Meyerding, Rochester, Minn., discussed "Dupuytren's Contracture" before the Chicago Orthopaedic Society, March 13. Dr. Roger Anderson, Seattle, discussed a paper presented by Dr. James J. Callahan on "Fractures of the Patella."

Speakers before the Chicago Gynecological Society, March 20, include, among others, Drs. George H. Rezek on "A Biological Test for the Diagnosis of Intra-Uterine Fetal Death" and Harold H. Hill, Oak Park, "Value of the Sturmdorff Cone for Biopsy Material in the Detection of Early Carcinoma of the Cervix Uteri."

Mr. Harold Baker, East St. Louis, discussed "The Harrison Narcotic Act" before the St. Clair County Medical Society in East St. Louis, March 5; speakers at the March 4 meeting in Belleville included Drs. Robert S. Berghoff and Clayton J. Lundy, Chicago, on "Diagnosis and Treatment of Heart Disease" and "Electrocardiogram in Early Diagnosis of Arteriosclerotic Heart Disease" respectively.

The Chicago Society of Allergy was addressed, March 16, by Drs. Milton B. Cohen, Cleveland, and Karl D. Figley, Toledo, on "Changes in Growth, Maturity and Mineralization Associated with Allergy" and "Iodized Oil in Intractable Asthma" respectively. Dr. Isadore Pilot discussed "Urticaria Due to Witte's Peptone."

The Chicago Tuberculosis Society was addressed, March 13, by Drs. Frederick Lieberthal on "Urinary Tuberculosis—Its Relation to the Tuberculosis Problem in General"; Thomas O. Nuzum, Janesville, Wis., "Intrathoracic Fluid," and Jay Arthur Myers, Minneapolis, "Tuberculosis Lesions in Medical Students and Nurses."

Dr. Roy R. Grinker, head of the division of psychiatry at the University of Chicago, has resigned to become chairman of the department of neuropsychiatry at Michael Reese Hospital. In accordance with plans of the hospital for the development of investigative interest in nervous and mental diseases, clinical and laboratory facilities for research in neuropsychiatry are to be opened for Dr. Grinker's purpose. Applica-

tion for a research fellowship in neuropsychiatry beginning July 1 should be made to him.

Dr. Max Thorek has been made a corresponding member of the Society of Medical Sciences of Lisbon, Portugal.

Dr. Louis W. Sauer, Evanston, Illinois, presented a paper on "Whooping-cough" before the Kankakee County Medical Society in Kankakee, March 12.

Dr. Paul C. Schnoebelen, St. Louis, addressed the Madison County Medical Society on the subject of "The More Common Bone Tumors" and Dr. Leith Slocumb on the subject of "Rectal Diseases and Their Treatment," March 6, 1936, at the Louis Latzer Memorial Library, Highland, Illinois.

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### News Notes

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—In 1935 there were 10,085 deaths attributed to heart disease, as compared with 9,654 in 1934. These totals, based on statistics reported by the Chicago Heart Association, compare with 35,424 deaths from all causes in 1935 and 36,282 in 1934.

—Health directors and sanitary engineers representing Illinois, Iowa, Minnesota, Missouri and Wisconsin attended a meeting in Chicago, March 10, to consider a program of stream pollution abatement in the upper Mississippi drainage basin. State health directors in each of the states named have signed an agreement to cooperate in this program.

—The sixth annual tumor clinic will be held at the Veterans' Administration Facility-Edward Hines Jr. Hospital, Hines, April 9. The clinic will begin at 2:30 in the afternoon, under the direction of Dr. Max Cutler, Chicago, and staff officers of the tumor clinic of the hospital. Following dinner in the evening, Dr. Gordon B. New, Rochester, Minn., will be the guest speaker.

—Dr. Alfred J. Kobak discussed "Maternal Deaths from Abortion in 1934" before a meeting of the maternal welfare committee of the Chicago Gynecological Society, February 18. Speakers before the Chicago Gynecological Society, February 21, included Drs. Garwood C. Richardson on "Significance of the Fetal Heart Tones and Uterine Firmness in Abruptio Placentae"; Clyde J. Geiger, "Benign and Malignant Polyps of the Cervix Uteri," and Marshall W. Field,

"Spontaneously Occurring Painless Labor in the Absence of Neurologic Diseases."

—Cook County Hospital cared for 69,891 patients during 1935; although the normal daily capacity of the hospital is 2,600, a daily average of 2,619 was maintained by placing beds in hallways and opening two new floors in the children's ward which provided 190 additional beds. The number of persons who died in the hospital was 6,650. There were 82,721 patients turned away from the hospital; of these 25,284 received first aid treatment.

—The Chicago Hospital Council was recently organized to work out a program of group hospital insurance, newspapers report. Hospitals that have joined the council are Augustana, Berwyn, Garfield Park, Community, Bethany, Grant, Henrotin, Holy Cross, Home for Destitute Crippled Children, St. Anthony de Padua, Little Company of Mary, Lutheran Deaconess, Michael Reese, Mount Sinai, St. Bernard's, St. Joseph, St. Luke's, University of Chicago Clinics, including Billings Memorial, Bobs Roberts Memorial and the Max Epstein clinics; Women's and Children's Hospital, and Woodlawn.

—A survey of visual conditions in public schools in Chicago is under way, under the auspices of the board of education, as a project of the works progress administration. The eyesight of all children will be tested. The Illinois Society for the Prevention of Blindness is supervising the making of the tests. Children whose vision falls below 20/70 will be required to have an examination by an ophthalmologist. Members of the Chicago Ophthalmological Society who will assist in making the examinations are requested to consider this work as a partial charity since it is primarily for the underprivileged. Rates have been fixed for patients able to pay a fee, and free choice of physician is urged.

—A special program of lectures and demonstrations in medicine will be held under the direction of The Mayo Foundation from April 6 to 10, inclusive. Mornings will be devoted to surgical and medical clinics. In the afternoons and evenings, in addition to clinico-pathologic conferences, symposiums will be conducted on various phases of gastroenterology, urology, acute and chronic empyema, vascular diseases of the extremities, hypertension, orthopedics, and oral plastic surgery.



—The University of Illinois announces that in the College of Medicine a new department of Neurology and Neurological Surgery has been created and Dr. Eric Oldberg has been appointed Professor and Head of this new department. This action was taken at a recent meeting of the Board of Trustees. Dr. Oldberg has been Acting Head of Surgery since the death of Dr. Carl A. Hedblom.

Dr. Warren H. Cole of the Department of Surgery of Washington University, St. Louis, has been appointed Professor and Head of the Department of Surgery to succeed Dr. Hedblom.

Both of the above appointments will begin September 1, 1936.

## Deaths

HENRY PATTERSON BAGLEY, Galesburg, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; a Fellow, A. M. A.; at various times associate, and instructor in laryngology and otology, Rush Medical College, Chicago, and assistant professor of ear, nose and throat diseases at Loyola University School of Medicine, Chicago; served during the World War; formerly on the staffs of the Chicago Eye, Ear, Nose and Throat Hospital, St. Mary's of Nazareth Hospital and the Illinois Charitable Eye and Ear Infirmary, Chicago; aged 59; on the staff of the Galesburg Cottage Hospital, where he died, February 8, of pneumonia.

FREDERICK AUGUST BAUMGART, Danville, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; a Fellow, A. M. A.; past president of the Vermilion County Medical Society; on the staffs of the Lakeview Hospital and St. Elizabeth Hospital; aged 61, died; January 15, of angina pectoris.

JACOB WENDELL CLARK, Chicago; Rush Medical College, Chicago, 1899; served during World War; aged 57; died January 30, of coronary thrombosis.

CHARLES E. COLWELL, Aurora, Ill.; Hahnemann Medical College and Hospital, Chicago, 1885; a Fellow, A. M. A.; past president of the West Aurora School Board; on the staff of the Copley Hospital; aged 71; died, January 10, of angina pectoris.

VESSELIUS DAVIS, Wapella, Ill.; Western Reserve University Medical Department, Cleveland, 1882; aged 76; died, Dec. 20, 1935, of arteriosclerosis.

CLARENCE ALFRED HANSON, Chicago; Loyola University School of Medicine, Chicago, 1926; member of the Illinois State Medical Society; aged 39; died, January 21, of coronary thrombosis.

GEORGE OSCAR HULICK, East St. Louis, Ill.; American Medical College, St. Louis, 1902; a Fellow, A. M. A.; formerly professor of obstetrics at his alma

mater; past president of St. Clair County Medical Society; aged 59; died, February 3, of myocarditis.

WILLIAM BRADBURY McCURE, Evanston, Ill.; Johns Hopkins University School of Medicine, Baltimore, 1912; a Fellow A. M. A.; house officer, Harriet Lane Home for Invalid Children, Johns Hopkins Hospital, 1912-1913; assistant resident and resident physician Children's Memorial Hospital, Chicago, 1913-1915; instructor in pediatrics, State University of Iowa College of Medicine, Iowa City, 1915-1916; associate in pediatrics, Northwestern University Medical School, since 1930; attending pediatrician, Evanston Hospital, since 1918 and associate physician since 1930; attending physician to the Children's Memorial Hospital, Chicago, since 1929; fellow, at one time director, associate member, and member of the Otho S. A. Sprague Memorial Institute Laboratory for Research of the Children's Memorial Hospital; served during the World War; member of the American Pediatric Society and the American Academy of Pediatrics; contributed to pediatric textbooks and to the periodical literature; aged 51; died, February 13, of hypertensive cardiovascular disease and acute angina pectoris.

GEORGE GANSEY O'CONNELL, Chicago; Rush Medical College, Chicago, 1908; member of the Illinois State Medical Society; aged 50; died, Nov. 23, 1935, of hemiplegia, hypertension, arteriosclerosis and mitral stenosis.

CHARLES WICKHAM PARKER, Chicago; Eclectic Medical College of the City of New York, 1882; Rush Medical College, Chicago, 1893; aged 81; died Dec. 30, 1935, of carcinoma of the rectum.

SUMNER J. RICKER, Aurora, Ill.; Hahnemann Medical College and Hospital, Chicago, 1871; a Fellow, A. M. A.; College of Physicians and Surgeons of Chicago, 1891; aged 88; died suddenly, January 4, of heart disease.

HARRIS ELLETT SANTEE, Chicago; University of Pennsylvania Department of Medicine, Philadelphia, 1892; member of the American Association of Anatomists; professor of anatomy, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900-1910; professor of nervous anatomy, Chicago College of Medicine and Surgery, 1910-1917; author of "Anatomy of Brain and Spinal Cord"; aged 71; died, February 28, in the West Side Hospital, of chronic bronchitis and myocarditis.

OTTO WILLIAM STAIB, Barlett, Ill.; College of Physicians and Surgeons of Chicago, 1888; a Fellow, A. M. A.; aged 78; died, January 9, of coronary thrombosis.

DANIEL PATRICK TETER, Chicago; Baltimore Medical College, 1889; on the staffs of the Swedish Covenant Hospital and the Martha Washington Hospital; at one time medical warden at the Cook County Hospital; aged 69; died, January 9, of coronary thrombosis.

ROLLAND VINCENT TURNER, Aurora, Ill.; State University of Iowa College of Medicine, Iowa City, 1925; member of the Illinois State Medical Society; aged 37; died, January 23, in the Misericordia Hospital, Milwaukee, of Addison's disease.



# MEAD'S OLEUM PERCOMORPHUM

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### *Rich in Natural Vitamins A and D*

Mead's Oleum Percomorphum makes it possible to prescribe natural vitamins A and D in the same ratio as they occur in cod liver oil\* — but in drops dosage rather than in teaspoonfuls. Consisting of equal volumes of percomorph liver oil and cod liver oil, this product is so potent that it can be given in 1/100 the dosage of cod liver oil.\* Each gram supplies not less than 60,000 vitamin A units and 8,500 vitamin D units (U. S. P.).

### *Convenient to Prescribe*

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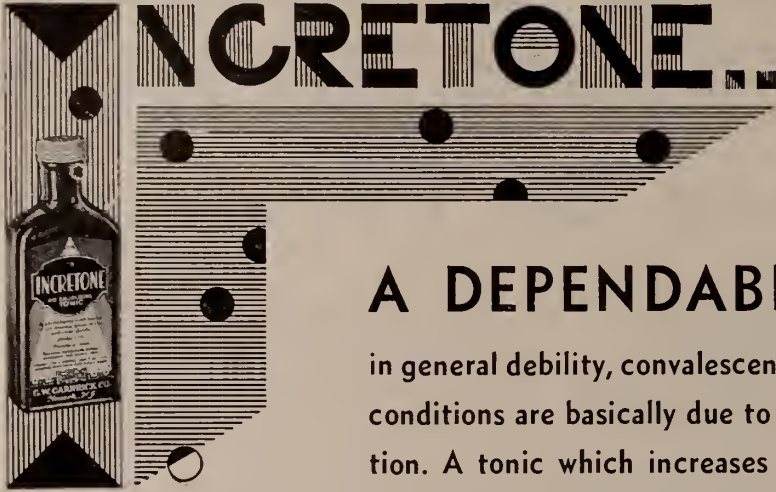
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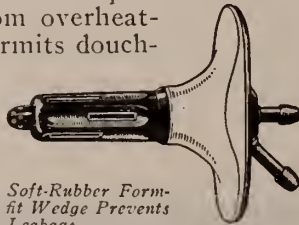
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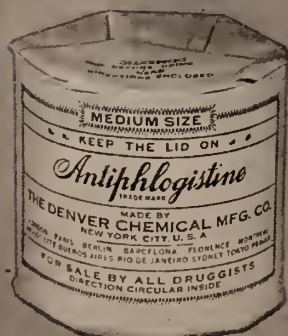
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As of April 1, 1936, we are discontinuing all lay advertising and thereafter shall confine our promotional activities exclusively to strictly ethical procedure.

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### Book Reviews

THE NATIONAL FORMULARY. Sixth Edition. Prepared by the Committee on National Formulary by authority of the American Pharmaceutical Association. Published by the American Pharmaceutical Association. Washington, D. C. 1935. Price

The National Formulary is revised under direct authorities and supervision of the council of the American Pharmaceutical Association. In this sixth edition attention is directed to the General Notices on pages 1 to 8 and to the History of the National Formulary on pages 485 to 503, the latter including the outstanding features of the Sixth Revision on page 492; the Gen-

eral Principles of Revision on page 495, and the Organization of Personnel on page 499.

On pages 504 to 513, will be found the lists of Articles Added to N. F. VI; Articles Official in N. F. V, but not Included in N. F. VI; Changes in Latin Titles, and Changes in English Titles.

A TEXTBOOK OF BACTERIOLOGY. By Thurman B. Rice, A. M., M. D., Professor of Bacteriology and Public Health at the Indiana University School of Medicine. 351 pages with 121 illustrations. Philadelphia and London. W. B. Saunders Company. 1935. Cloth, \$5.00 net.

In this work the author has shortened the descriptions of cultural characteristics, and the detailed instruc-



(Continued from page 30)

Perry .....	T. B. Kelly, DuQuoin.....	H. I. Stevens, Tamaroa.
Piatt .....	W. E. Burgett, Bement.....	J. H. Holmes, Monticello.
Pike .....	P. V. Dilts, Pittsfield.....	J. H. Rutledge, Nebo.
Pope .....	No Society.	
Pulaski .....	O. T. Hudson, Mounds.....	Berry V. Rife, Mounds.
Randolph .....	E. A. Pautler, Red Bud.....	J. W. Beare, Chester.
Richland .....	Bernard A. Weber, Olney.....	Paul C. Weber, Olney.
Rock Island.....	M. S. Dondanville, Moline.....	H. W. Shuman, Rock Island.
St. Clair .....	A. M. Aszman, East St. Louis.....	Howard C. Knapp, East St. Louis.
Saline .....	N. A. Herman, Harrisburg.....	G. R. Johnson, Harrisburg.
Sangamon .....	G. W. Staben, Springfield.....	H. P. Macnamara, Springfield.
Schuyler .....	F. D. Culbertson, Rushville.....	H. O. Munson, Rushville.
Scott .....	No Society.	
Shelby .....	W. G. Turney, Shelbyville.....	C. H. Hulick, Shelbyville.
Stark .....	J. C. Williamson, Toulon.....	Clyde Berfield, Toulon.
Stephenson .....	N. C. Phillips, Freeport.....	F. X. Graff, Freeport.
Tazewell .....	H. W. Walker, Pekin.....	Louis A. Balke, Pekin.
Union .....	L. J. May, Anna.....	Harry Phillips, Anna.
Vermillion .....	Henry Hooker, Danville.....	A. R. Brandenberger, Danville.
Wabash .....	E. P. Keneipp, Mt. Carmel.....	H. A. Elkins, Mt. Carmel.
Warren .....	H. L. Kampen, Monmouth.....	Chas. P. Blair, Monmouth.
Washington .....	P. B. Rabenneck, Nashville.....	G. A. Green, Nashville.
Wayne .....	E. E. Roberts, Mt. Erie.....	T. J. Hilliard, Fairfield.
White .....	R. C. Brown, Carmi.....	E. A. Fahnestock, Carmi.
Whiteside .....	H. M. Jacobs, Sterling.....	L. S. Reavley, Sterling.
Will-Grundy .....	W. R. Fletcher, Joliet.....	J. R. Duffy, Joliet.
Williamson .....	J. G. Parmley, Marion.....	Harvey A. Felts, Marion.
Winnebago .....	E. H. Quandt, Rockford.....	Wm. K. Ford, Rockford.
Woodford .....	Noel Gordon, Minonk.....	W. S. Morrison, Minonk.

tions for laboratory technic. Long and theoretical discussions of controversial subjects have been largely omitted in favor of the more practical phases of the subject—diagnosis, prognosis, etiology, collection of specimens for the laboratory, interpretation of laboratory findings, treatment, specific therapy, prophylaxis and sanitary control.

**SYNOPSIS OF CLINICAL LABORATORY METHODS.** By W. E. Bray, M. D. Thirty-two text illustrations. Eleven color plates. St. Louis. The C. V. Mosby Company. 1936. Price \$3.75.

This synopsis brings together in a small volume for ready reference the more recent information and the most frequently used methods of laboratory diagnosis. It is the outgrowth of the author's long experience in teaching clinical diagnosis to medical students, and in teaching and supervising clinical laboratory technicians.

**EXAMINATION OF THE PATIENT AND SYMPTOMATIC DIAGNOSIS.** By John Watts Murray, M. D. With two hundred and seventy-four illustrations. Second edition. St. Louis. The C. V. Mosby Company. 1936. Price \$10.00.

This work should prove a great aid to the general practitioner in his every day contact with the sick. It brings the subject of diagnosis strictly up-to-date. Considerable new material on the diagnosis of common ailments has been made.

**ABORTION SPONTANEOUS AND INDUCED MEDICAL AND SOCIAL ASPECTS.** By Frederick J. Taussig, M. D. Illustrated. St. Louis. The C. V. Mosby Company. 1936. Price \$7.50.

This volume is one of a series dealing with medical aspects of human fertility sponsored by the National Committee on Maternal Health, Inc. In presenting this work the authors have treated the subject from the broadest viewpoint. Social aspects have been included in this volume intended for physicians because in pre-

ventive medicine underlying social conditions should always be taken into consideration.

**MEDICAL MYCOLOGY FUNGUS DISEASES OF MEN AND OTHER MAMMALS.** By Carroll William Dodge, Ph.D. Illustrated. St. Louis. The C. V. Mosby Company. 1935. Price \$10.00.

This work is the outgrowth of a course in medical mycology at Harvard University offered in 1924. It contains a summary of practically all the literature in this particular field and for the first time in this field, a relatively complete and accurate bibliography of existing literature is presented.

**A TEXT-BOOK OF OBSTETRICS FOR STUDENT AND PRACTITIONERS.** By Frederick C. Irving, M. D. New York. The MacMillan Company. 1936. Price \$6.00.

This work is intended as a simple and concise textbook for students and practitioners. The volume embodies in an amplified form the material contained in the outlines in the normal and abnormal obstetrics used for a number of years in teaching students through successive years at Harvard Medical school. The author has made no attempt to embrace the entire field of obstetrics, it is offered to the reader as a framework upon which he may fix the fabric of his knowledge.

**YOUR HAY FEVER.** By Oren C. Durham. Indianapolis and New York. The Bobbs-Merrill Company. 1936. Price \$2.00.

This work is an illuminating story of what science has accomplished in discovering the causes and prevention of hay fever. The story is told by a man who has made a life time investigation of the subject.

**MEDICAL PAPERS.** By Henry Asbury Christian, M. D. Baltimore, Md. The Waverly Press. 1936.

This work is dedicated to Dr. Christian as an appropriate token of appreciation and esteem in celebration of Dr. Christian's sixtieth birthday and is from his present and past associates and house officers at the Peter Bent Brigham Hospital, Boston, Mass.

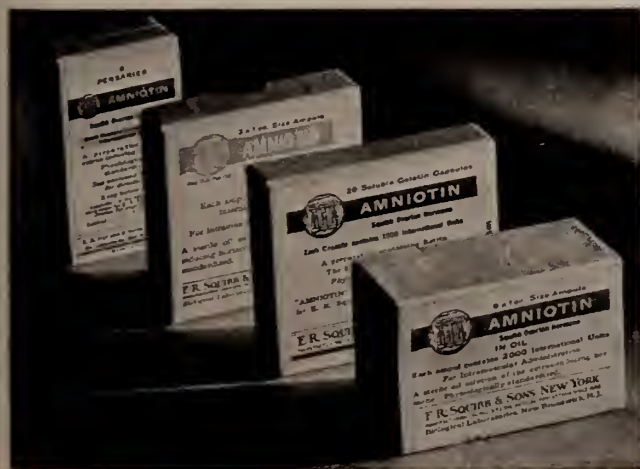
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cases."—Goldman, Stern and Lapin, Bronx Hospital, N. Y., *N. Y. State J. of Med.*, 36:15 (Jan. 1), 1936.

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\$3.00 a Year

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Eighty-Sixth Annual Meeting at Springfield, May 19, 20, 21, 1936

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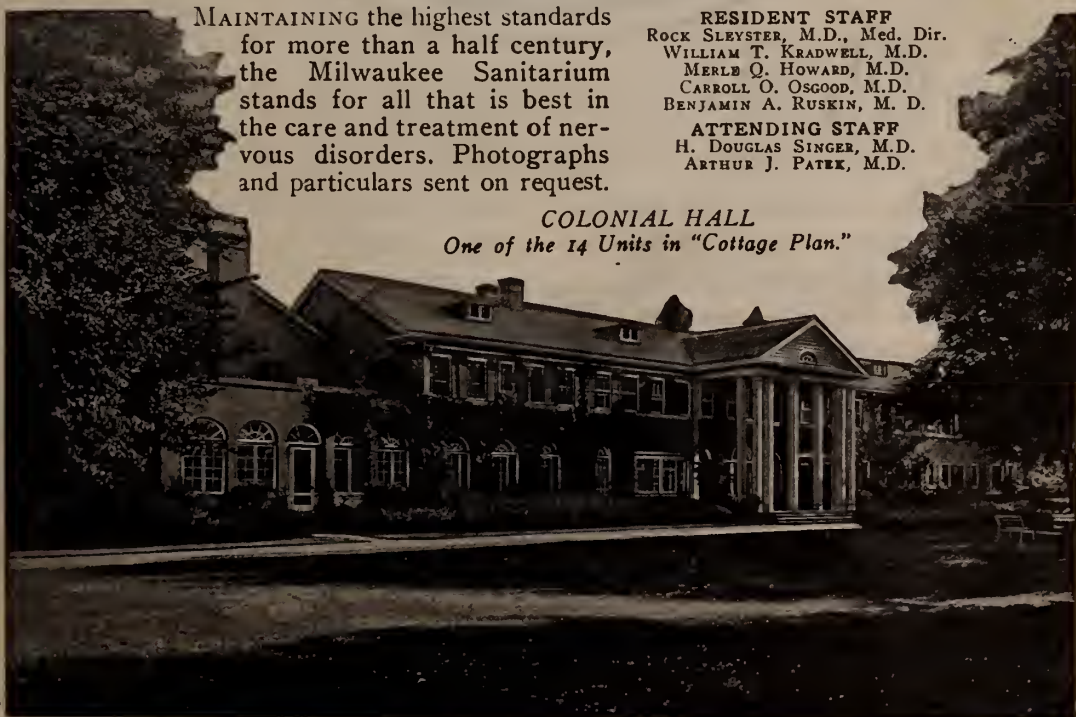
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# CANNED FOODS AND THE PUBLIC HEALTH

## IV. BOTULISM

• Several of our readers have inquired as to the possibility of botulism resulting from the consumption of commercially canned foods. The canning industry is proud of the part it has played in the eradication from its products of this deadly type of food intoxication. We are glad to devote this space to a discussion of this important topic.

During recent years, the daily press periodically carries reports relating how one or more members of a family, or of a group of persons, were stricken after a meal, usually with fatal results. Sometimes these accounts describe how an "anti-toxin" was rushed to the scene—an indication that botulism was involved. These press reports often include the statement that a "canned food" was incriminated as the cause of the illness.

*We wish to emphasize that as far as the records go, these outbreaks without exception are not attributed to foods commercially canned in this country.* In practically every instance, it was found that the foods—usually of a non-acid or semi-acid nature—had been preserved at home by the use of inadequate heat sterilization processes (1). These press reports, by not stating correctly the type of food involved, have done much to cast unwarranted suspicion on commercially canned foods as possible causes of botulism.

Botulism, or acute toxemia due to *Clostridium botulinum*, is by no means a new affliction. As early as 1802—ninety-five years before van Ermengem discovered the true cause of the intoxication—warnings were issued against botulism. However, not until severe outbreaks occurred in this country some fifteen years ago, was it realized that cognizance should be taken of the fact that

foods canned by the methods used in those days could become contaminated with the toxin of this organism. This fact having been realized, the canning industry took immediate steps to prevent such contamination of their products.

Research was inaugurated and has been continued to which the industry has contributed not only financially, but also by the studies of scientists associated directly with the canning industry (2). The end result of these researches was the development of scientific methods of determination of heat sterilization treatments, or heat processes as they are known to the industry, which would be adequate to insure the safety of canned foods from the standpoint of botulism (3).

The effectiveness of the measures generally adopted by the canning industry of the United States is evidenced by the fact that no case of botulism attributable to an American commercially canned food has occurred during the past ten years (1a). Foods packed in commercial canneries are heat processed not only to insure protection from bacterial spoilage causing merely the loss of the food, but to render them safe from the standpoint of botulism, as well. In fact, a sterilizing process sufficient to insure the destruction of the most heat resistant strain of *Cl. botulinum* ever isolated is considered the minimum requirement of heat treatment of commercially canned foods. The National Canners Association has issued lists of scientifically determined processes for non-acid canned foods with which canners comply (4).

Such are the facts. The American canning industry offers its products to the consuming public for what they are; namely, wholesome and nutritious foods.

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1. a) 1935 Amer. J. Public Health, 25, 301  
b) 1935 J. Amer. Diet. Assn. 11, 18

2. 1936 J. Bacteriology 31, No. 1 P. 71  
1933 Amer. J. Public Health, 13, 108  
1922 J. Inf. Dis. 31, 650

3. 1929 Natl. Res. Council Bulletin, 7, No. 87

4. 1937 N. C. A. Bulletin 26-L, Revised

*This is the twelfth in a series of monthly articles, which will summarize, for your convenience, the conclusions about canned foods which authorities in nutritional research have reached. We want to make this series valuable to you, and so we ask your help. Will you tell us on a post card addressed to the American Can Company, New York, N. Y., what phases of canned foods knowledge are of greatest interest to you? Your suggestions will determine the subject matter of future articles.*



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Boiled Water . . . . .	12 ounces
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Powdered Milk . . . . .	5 tablespoons
Boiled Water . . . . .	20 ounces
Karo . . . . .	2 tablespoons

Lactic Acid Milk . . . . .	12 ounces
Boiled Water . . . . .	8 ounces
Karo . . . . .	2 tablespoons

## REFERENCES:

*Kugelmass, Clinical Nutrition in Infancy and Childhood, Lippincott.*  
*Marriott, Infant Nutrition, Mosby.*  
*McLean & Fales, Scientific Feeding in Infancy, Lea & Febiger.*

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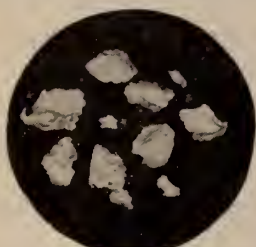
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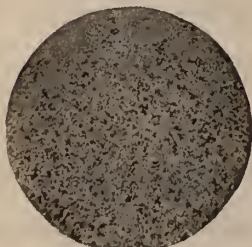
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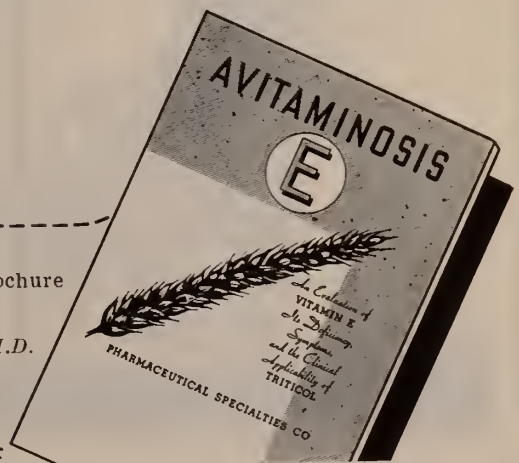
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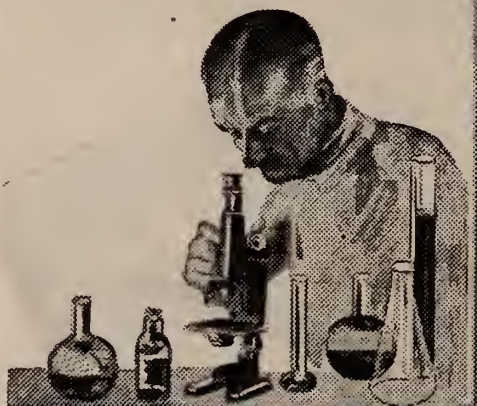
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## Editorials

### THE BODY POLITIC IS AILING; THE LAITY FUNCTIONS OUT OF TURN AND IN ALL IGNORANCE

In a nation gone crazy over the idea of theoretical reform for much that does not need reformation, and of salvage of what is sick and corrupt at the expense of what is clean and healthy, it is natural for the profession of medicine to expect a greater or less assault at the hands of those who with little innate wisdom still want to be the Lyncurguses and Solons of the day.

The trouble is that this assaulting has gone too far. The medical profession can no longer tolerate rankly invidious attacks and accusations, all *along economic lines* rather than on scientific procedure from those egotistical persons peddling half-baked propaganda for activities of which they are basically ignorant. Medicine is not attacked for lack of competent service. It is lambasted because it is not willing to be the burnt offering for the financial murder of dozens of the nation's industries, and for all American ideals.

In April or May of last year, the non-partisan paper, *The United States News*, remarked that in three years our present government had spent more money "than has been spent by all other administrations from Washington to Wilson." In other words the present administration in three years had spent and budgeted \$24,206,533,000, while all of the money spent in a previous 124 years had been only a little over three million more or in exact figures \$24,521,845,000. According to *The United States News* the present administration of our country has spent the equivalent of a distribution of some \$12 for every man woman and child on the face of the entire earth. This sum also would have been sufficient to take care of thirty-one (31) presidential terms of four (4) years each; and for four wars. Something less than three one one-half billions of dollars was the cost of the war of 1861-5 between the states; and this expenditure together with



that of the war of 1812, and of the war with Mexico and Spain is far less than the \$4,880,000,000, or four billion, eight hundred and eighty million dollars appropriated by Congress last spring for some funny and rather debatable, no matter how well meant, plans and projects and developments that seem to add lamentably to the high cost of living and the low state of the taxpayer's bank account. Among these projects is the new social security plan with which hoary headed old Europe has been struggling since the days of Bismarck's first workmen's compensatory reforms in the German mines almost a century ago. It is supposed to be the path to an earthly heaven for the man whose salary is in the class called "low brackets." Perhaps, so. And another project is to "socialize medicine," trim the doctors in other words, and foist upon the United States the same inept, tragic system of medical service that is giving those European countries that have adopted it no end of trouble. This medical service, this bureaucratic control of medicine in continental Europe, has wrested the laurels of medical and surgical prowess from the European brow and become a source of economic distress and actually inefficient medical service. Europe is trying now to remedy the same system of socialized medicine that the communistically inclined United States politicians are determined to set as a millstone upon the necks of every physician and every patient in the United States.

Evidently America's lesson of the noble experiment of prohibition was only half learned. Scientific medicine survived that, just as it has survived casualties without end that threatened the nation, and went calmly along its way guided by hard work, faith and science. The trouble has been that medicine has been too busy perfecting science to perfect not only its own defense but the defense of the nation—actually the protection of the country from socialistic bureaucrats who have pretty well managed to crowd with chaos almost every American commonwealth. There is fair chance however that a profession that could banish so many insidious enemies when banded together can probably work its way with knock-out effect against socialist bureaucracy and rank communism if allied shoulder to shoulder against not only the enemy of American principles and consistent democracy, but against civilization itself. Considering medicine's triumph over yellow and

typhoid and typhus fevers; its control of syphilis, of smallpox, malaria and diphtheria; its progress against tuberculosis and meningitis and infantile paralysis, to say nothing of the miracles of modern surgery, all glorious victories over curses that invaded the world, why can not scientific medicine allied, and armored by its gifts for diagnosis and indications for remedial potions or practices, swing the nation back to sanity? What the psychiatrist can do to the individual, the medical profession should be able to do first for the nation, and later for the world. The body politic is ailing; the laity functions out of turn and in all ignorance. The civic spectacle is that of aboriginal medical men treating cancer of the liver by feeding the dying patient with toad's tonsils and adding a gentle treatment of thumping tom-toms and sacred fires. "Socialize medicine" and cure the world, they say. The cure will not come that way, though organized medicine, working together and following the precept "*Mens sana in corpore sano*" can go a long way about it. *Can go?* Nay *must* go, and "Boots and saddles" is sounding now. Medicine cannot be socialized; state medicine must not prevail, and what inner faults in medical administration, or in medical relations between patients and physicians exist, should be eliminated by the medical profession and by that body alone. Let the laity stick to its own last; permit the profession to cure itself and all will be well.

---

#### THE EUGENISTS SEEM TO BE UP AGAINST MORE THAN THEY BARGAINED FOR

Folk-lore for generations has persisted that "God sends little children where He wills," even if the blessed domicile is minus a cabbage patch or a doctor's black bag. Science lately admits that there may be something in the saga. Even the advisory council of that bureau of infinite power on earth, the Milbank Memorial Fund, heard recently that neither all the statisticians that their millions may hire, nor all the propagandists these same millions put to work, *cannot* make the higher classes of society reproduce with any higher degree of fertility nor facility of purpose. If this is the case, say the Milbank devotees, then what is the use of it all?

Ethical medicine has been wondering about this same idea for quite some time. With those

socialistic lay practitioners of medicine who have shouted from the housetops that the poorer specimens of the race could be taught to keep from reproducing or be so treated surgically, willy-nilly so that they could not, ethical medicine has not argued. The postulate held the germ of truth. Now that the propagandists have won their point that race-control methods should be broadcast far and wide so that the inferior social group shall not multiply, to their expressed despair these same propagandists do *not* find that the superior classes are making any effort to take up the white man's breeding burden where their so-called inferior brothers and sisters left off. So what to do about it? Like the prohibition experiment the eugenists would seem to be up against more than they bargained for. After all, God made human nature and not any salaried bureaucrat. A pun is the lowest form of wit by tradition and taste, and a byplay upon any man's cognomen is worse. Yet perhaps the editor will be forgiven for remarking that a *pearl* of a speech was made recently by Raymond Pearl, Ph.D., Sc.D., professor of biology in the School of Hygiene and Public Health of the Johns Hopkins University. When Dr. Pearl spoke before the advisory council of the Milbank Memorial Fund he said in part: "Human beings can be made to breed less rapidly than they have in the past, but apparently they can neither be wheedled nor forced into breeding more rapidly or extensively than they want to. Any population policy that assumes the contrary, in however hidden form the assumption is made, seems likely to be confronted by the inexorable, obstinacy of men and women in this particular department of physiology."

"The whole experience of the eugenics movement from its beginning seems to demonstrate rather conclusively that fertility differentials, whether between social and economic classes, or relative to true biological defects, can practically be altered by purposefully planned policies only in one direction. High expressed fertilities of classes can be reduced in a number of different ways. But no effective practical means, in our type of social structure with its existing attitudes, have been found to increase the realized fertility of groups where it is thought desirable to do so."

Perhaps Nature and the powers that be have decided that the politico-bureaucrats and illy-advised-foundations are not going to do anything

successfully after all except to "stay in their own backyards!"

---

### THE LARGEST BODY OF SO-CALLED "SUPERIOR CHILDREN" COME NOT FROM THE IDLE RICH

Oliver Optic and Horatio Alger must have had "an eye to the future and an ear to the ground" half a century and more ago when they wrote their famous moral thrillers for the young. Poverty, virtue and success, often genius, went hand in hand in those tomes turned out for the edification of the semi-pioneer young. Often the fictioneer proves prophet. Jules Verne's "Around the World in Eighty Days" and "Darius Green and His Flying Machine" couldn't get a single salvo in the market place, these days. They are both too commonplace. Yet it has taken a Harvard University savant and a collaborator to come out this summer and edify the world with a painfully produced tabulation that adduces that the largest body of so-called "superior children" comes not from the idle rich, the elegant and the acclaimed aristocrats of this our great democracy, but from the middle classes—the group that worries often about where the next pair of shoes comes from. The savant, Professor Edward A. Lincoln, member of the Harvard Psycho-Educational Clinic at Harvard University, aided by Prof. Walter F. Dearborn, began in 1921 to make this study, and employed some 3,000 children in the work. Their findings substantiate the premise that geniuses in the greatest numbers come from the middle classes, the while admitting that the so-called "professional classes" in proportion to their number do contribute the largest number for any class of "superior children." Prof. Lincoln grows optimistic however and says that even if the birth-rate continues to diminish in the superior class, social disaster will not eventuate.

---

### THE OFFICIAL PROGRAM

The official program for the 86th Annual Meeting of the Illinois State Medical Society is published in this number of the ILLINOIS MEDICAL JOURNAL. There are many unusual features in connection with the 1936 annual meeting which should appeal to physicians throughout the state of Illinois.

The programs have been carefully arranged, with a wide range of interesting subjects sched-



uled for each of the scientific meetings. There will be the usual interesting fracture demonstrations which have been so popular during recent annual meetings. More and better scientific exhibits have been arranged than for any previous meeting, and there will be an unusually fine display of technical exhibits to show the physician what the many manufacturers of physicians' supplies have done through another year.

Springfield is centrally situated and readily accessible by auto, train or bus, and with the hard roads leading into the capital city from all parts of Illinois, any member of the Society can reach Springfield within a few hours.

All sessions, general and sectional, will be held in one building, the Knights of Columbus building, where the last meetings in Springfield have been held. This fine building is only a short distance from the hotels and shopping district. All exhibits, scientific and technical, will be displayed in this same building.

The Veterans' Dinner will be held at the Leland Hotel; the President's Dinner and many other functions, will be held in the Abraham Lincoln Hotel, the official hotel for the meeting. Springfield is well supplied with modern hotels and even though a reservation has not been made in advance of the meeting, all members will be assured that they will find comfortable quarters.

All members coming to the meeting and not having a hotel reservation, will be aided by the hotel committee at the registration booth. The registration booth will also be headquarters for information relative to any phase of the meeting, or relative to the city of Springfield.

The Sangamon County Medical Society has had much experience in making local arrangements for the annual session of the Illinois State Medical Society, and they have everything planned now for a most successful 1936 annual meeting.

#### PLAN ON ATTENDING YOUR OWN ANNUAL MEETING.

Fifty years ago Oliver Wendell Holmes said of Dupuytren, the great surgeon of the Hotel Dieu at Paris:

"No man disputed his reign—some envied his supremacy. Three times did the apoplectic thunderbolt fall on that robust brain; it yielded at last, as the bald cliff that is riven crashes down into the valley. I saw him before the first thunderbolt had descended: a square, solid man with a high and full-domed head, oracular in his utterances."

#### MALCOLM LA SALLE HARRIS, REQUIESCAT!

Although he had passed the honorable estate of three score years and ten, the death on March 22, 1936, of Malcolm LaSalle Harris, was a tragic loss both to science and to the laity, whom Dr. Harris, through his mastership of science, served so faithfully and well.

He was a master surgeon, a master teacher,



and a litterateur of no mean ability upon medical and scientific subjects. Literally Dr. Harris broke down in harness. The rest that he knew he should take after more than a half century of unrelenting devotion to medicine and its merciless demands, the rest that his confraternity had urged upon him, and which Harris refused, had its own revenge for its denial. Something over a year ago, while preparing to operate at Henrotin hospital, where he was chief of staff (in June, 1934, to be exact), nature asserted herself. Dr. Harris fainted. There was a subsequent temporary recovery, but Dr. Harris had denied too long to his own body the chance for recuperation that he had insisted upon in others. In complete collapse he was taken to the Milwaukee Sanitarium at Wauwatosa, Wis., where death came.

Born brilliant was Malcolm Harris. He was graduated from Rush Medical College in 1882,

but as he was then only twenty years of age the precocious youth was compelled to wait a year before he could take the state medical examination. After that Harris served until 1884 as an intern at Cook County hospital. For years afterward he maintained an office at 25 East Washington Street, one of the distinctive "Doctors' Buildings" in Chicago.

Harris was a native of Rock Island County, Iowa, where he was born on June 27, 1862, the son of Samuel and Frances Greene Harris. His early education was obtained in the public schools of Iowa. His honors were many, and his capacity for hard work and great attainment almost miraculous. He had a brain like a steel trap and a vast fund of general information to back-ground his acute scientific knowledge. In debate he was little less than a wizard, as adept in an extemporaneous attack as in one that had been studiously prepared. Of medium height, fair coloring, delicate yet sturdy build and of handsome physiognomy he was a social favorite though far from being what is usually classified as a "society doctor." His practice ranged from the slums to society's richest purlieus. Among scientific society presidencies Dr. Harris had held this office for the Chicago Medical Society, the Chicago Pathological Society, the American Medical Association, the Western Surgical Association, and the American Association of Clinical Surgery. He was one of the early "medical economists."

Dr. Harris became a member of the House of Delegates of the American Medical Society following its reorganization in 1901 and was in attendance at all sessions either as a member of the House, of the Board of Trustees, or of the Judicial Council from 1901 through 1934—a record of thirty-three years of service. A member of the Board of Trustees of the A.M.A., from 1903 to 1918, for the most of that time Harris served as secretary of the board. From 1918 through 1928 he was member and chairman of the A.M.A.'s Judicial Council. Also he was a member of the International Surgical Association and the American Surgical Association. During 1898 and 1899 Harris was secretary in the Section on Surgery of the American Medical Association. Contributions to the Oxford, Keen's and Bryant's Systems of Surgery and his translation and editing of Brann's "Local Anesthe-

sia" are among Dr. Harris' most widely known medical writings, outside of significant essays in the fields of statesmanship and medical economics. From 1889 until 1935, Dr. Harris served continuously as secretary of the board of trustees of Henrotin hospital and in 1935 was retired as president emeritus. His friends were legion among distinguished medical, industrial and civic leaders. So exact was his mind, so profound his thought, so clear his perspective, so keen his analytical psychology that the minds and methods of men were to him practically an open book. He was a reserved man, and though his friends were many, his intimates were few.

Surviving Dr. Harris are his widow, the former Rose Breckinridge of West Winsted, Conn., to whom he was married on October 12, 1887, and their one daughter, Florence, now Mrs. Max von Schlegell of Baltimore, Md.

#### HOTEL ACCOMMODATIONS

The members of the Sangamon County Medical Society in Springfield and the surrounding county are to be the hosts for the 1936 annual meeting and have been working for some months to make it an important and successful gathering.

Although Springfield is well supplied with excellent hotels it is wise to make early reservations to insure hotel accommodations. This is particularly desirable because of the legislative activity and the many conventions that select Springfield as a meeting place.

Members are urged to send reservations direct to the hotels.

Abraham Lincoln Hotel .....	300 rooms
St. Nicholas Hotel .....	350 rooms
New Leland Hotel .....	150 rooms
Illinois Hotel .....	60 rooms

There are other hotels, which are smaller but comfortable.

HOMER P. MACNAMARA, M. D.,  
*Chairman, Committee on Hotels.*

#### NOTICE TO GOLF ENTHUSIASTS

Golfing medicos attending the Annual Meeting of the State Medical Society will have the exceptional opportunity of playing on the beautiful eighteen-hole Illini Country Club course and for their benefit there will be held a handicap tournament on Tuesday morning with suitable prizes and luncheon at noon.

Foursomes and twosomes from various cities will contest and the Committee will be glad to arrange a game for you if alone. Bring your clubs along to the meeting and the tournament on Tuesday morning, May 19, 1936. Any information desired will be gladly given if you write to Dr. Fred P. Cowdin, Springfield, Illinois, *Chairman, Golf Committee.*



## MEDICAL ECONOMICS

Edited by the Committee on Medical Economics  
of the

C. G. Farnum, M. D.  
R. K. Packard, M. D.  
J. S. Templeton, M. D.  
C. E. Wilkinson, M. D.

Illinois State Medical Society  
E. S. Hamilton, M. D., Chairman  
Kankakee, Illinois

H. M. Camp, M. D.  
I. H. Neece, M. D.  
C. B. Reed, M. D.  
C. S. Skaggs, M. D.

Address all letters and communications to the Chairman.

The changes in the proposed methods for care of the indigent have become so frequent in the past few months that it is impossible for those of us who are not watching the Legislature from day to do to know what the latest plan is. Accordingly, I consulted a member of the Legislature today for the last word. He tells me beginning the first of May the responsibility will be on the County Board of Supervisors. As intimated in the last article in most instances the Board of Supervisors is not ready either as to organized personnel or available finances to accept this great responsibility. In addition it does not meet with the approval of political organizations. As a result Senate Bill 9 was passed recently, which returns the care of the indigent to the local Townships, which under Senate Bill 7 are empowered to raise funds in excess of the twenty-five cent limitation imposed by previous legislation for poor relief. This Township responsibility begins July 1, 1936.

This change will be agreeable, we feel, to the majority of the medical profession. In almost all parts of the state, the past relationship between the medical profession and the local Supervisor has been worked out in manner acceptable to both of them. It is now time for the previous agreement, which worked in the past, to be renewed. If the previous agreements were unsatisfactory, it is an excellent time for the medical profession to work out a plan which is mutually agreeable. Two methods have been used which have been satisfactory to the medical profession. One is for the work to be distributed to all members of the profession, who desire to participate in the work, and at the choice of the patients. The rate of pay for this service is less than the regular fee bill of the community in most cases, although in a few places the regular fees are paid. While this latter condition is probably as it should be and in agreement with the prices paid for all other necessities of life, it will be difficult to change

some of the supervisors, who for many years past have been accustomed to reduced prices. However, there can be no criticism of an attempt to correct previous defects. The other method which has worked very well in a few communities is for the County Medical Society to enter into a contract with the Supervisor for the medical services to the indigent. Then the members of the society divide into groups and work about two or three months of the year. The fees collected in accordance with the contract entered into are used in any manner agreeable to the members, being either pooled and used to pay dues to the State Medical Society, Journal A. M. A., maintaining Club Rooms, purchasing libraries, etc., or to be divided amongst the members according to either a pro rata share or the amount of service rendered by each member. The method agreed on will depend on the local situation, but now is the time for definite planning and the sooner this work is under way, the better the chances for successful culmination. I know that you are all tired of the repetition of this column on this subject, but there is no question of greater importance to the medical profession at this time than the care of the indigent and the compensation therefor.

According to an article in the world's greatest newspaper, the Group Hospitalization plan is about to be started in Chicago on a somewhat extensive scale. From the preliminary reports this plan will not be under the direct supervision of the medical profession but will be by hospital superintendents. There was some suggestion in the article read, that there might be considerable lay supervision. Of course this latter is one of the chief dangers and objections to the success of the plan from the viewpoint of the medical profession. It will be interesting to watch the development of the plan; the success or failure of the same. The trial of such a plan was inevitable and the only regret is that the medical profession did not have complete con-

trol of the same. We well know that such control means a lot of work for some few men and that there is no recompense for the work and time expended, other than the satisfaction of a job well done. We hope that no epidemic or great catastrophe occurs to give the plan an unfair trial, for the success or failure will have great influence on the rest of Illinois.

We hope that the attendance of the profession of Illinois at the annual state meeting will be greater than ever before and ask that those who attend pay especial attention to the papers presented on the subject of medical economics. A complete program of the meeting is available in this Issue of the *ILLINOIS MEDICAL JOURNAL*. Select the interesting papers and arrange to attend their presentation and participate in the discussion thereof. It is by a frank and earnest discussion of our problems that the proper solution is arrived at. We regret that the complete program is not available to the Committee at this time.

We trust that all members of the society will feel free to talk over their economics problems with some member of the Committee at the annual meeting.

E. S. HAMILTON,  
Chairman of Committee on  
Medical Economics.

#### CHANGE OF ADDRESS

The Educational Committee of the Illinois State Medical Society announces the removal of its offices to Room 1416, 30 North Michigan Avenue.

Telephone—State 4415.

#### ANNUAL MEETING OF THE AMERICAN ASSOCIATION FOR THE STUDY OF GOITER

The American Association for the Study of Goiter will meet at the Drake Hotel, Chicago, on June 8, 9 and 10. Dr. Nelson M. Percy is president-elect. The meeting consists of sessions Monday morning and afternoon, Tuesday afternoon and Wednesday afternoon. Hospital clinics will be held Tuesday and Wednesday morning.

#### READ THIS

University of Illinois College of Medicine alumni—Faculty informal entertainment and buffet-supper in Chicago, June 4 at 8 P. M. at the Research Hospital. Make reservations now. Medical alumni dues of one dollar includes admission. Invited guests one dollar.

W. H. STREICHER,  
Secretary Alumni Association,  
1853 W. Polk St.,  
Chicago, Ill.

#### ALUMNI AND FRATERNITY MEN, ATTENTION

General gathering of alumni and fraternity men and their friends, Illinois State Medical Meeting, Tuesday, May 19, at 6:00 P. M., Leland Hotel, Springfield. Inquire for ticket at registration desk.

A business meeting and luncheon of the American Academy of Pediatrics, State of Illinois, will be held at 12:30 P. M., Tuesday, May 19, 1936, in Parlor K, Abraham Lincoln Hotel, Springfield.

All members are urged to be present.

MAURICE L. BLATT, M. D.,  
Chairman State of Illinois,  
American Academy of Pediatrics.

#### COMMITTEE CHAIRMEN OF THE WOMAN'S AUXILIARY TO THE SANGAMON COUNTY MEDICAL SOCIETY

Credentials and Registration—Mrs. Corwin S. Mayes.  
Headquarters—Mrs. C. B. Stuart.  
Hospitality—Mrs. S. E. Munson, Mrs. W. A. Young and Mrs. E. E. Hagler.  
Finance—Mrs. John J. McShane.  
Hotels—Mrs. F. S. O'Hara.  
Information and Junior Aides—Mrs. Robert Flentje.  
Luncheon—Mrs. S. R. Magill, Mrs. C. W. Milligan.  
Dinner Dance—Mrs. J. E. Reisch.  
Publicity—Mrs. Winston H. Tucker.  
Tickets and Printing—Mrs. D. I. Martin.  
Transportation—Mrs. J. A. DeFreitas.  
Tea at Executive Mansion—Mrs. O. E. Ehrhardt.  
Lake Drive—Mrs. Harry Otten.  
Board Breakfast—Mrs. A. G. Aschauer (deceased).  
Bridge Dinner—Mrs. J. C. Jackman.

#### AMERICAN MEDICAL SERVICE

The institution of medicine in America is the best, most elaborate, as well as the most expensive in the world. For the most part this is perhaps just as it should be. Every twenty-fourth dollar of our ninety billion national income goes for health conservation or disease prevention or cure. Counting doctors, dentists, druggists, nurses, "irregular practitioners," technicians, hospital employees, and others, together with the rapidly growing army of up-lifters and social service workers, better than one of every seven of our one hundred and twenty-five million people is directly employed in this vast heterogeneous structure. The licensed doctors of medicine and dentistry are but a small fraction of this formidable array of supernumeraries—many of which are not only unnecessary but are actually harmful.—Milwaukee Medical Times.

#### FALLING BIRTH RATE

The decline in the birth rate extends to practically every civilized nation in the world. It has been going on for more than half a century; and the latest available data, which relate to 37 countries, and with every continent save Africa represented, show that the rapidity of the fall has been accentuated in the last five years.—Statistical Bulletin.



# ILLINOIS STATE MEDICAL SOCIETY EIGHTY-SIXTH ANNUAL MEETING

SPRINGFIELD, ILLINOIS

May 19, 20, 21, 1936

## OFFICIAL PROGRAM

### THE PRESIDENT'S DINNER

According to the usual custom in this Society Wednesday evening is devoted to the honoring of our President, Dr. Charles B. Reed of Chicago. The dinner will be held in the ball room of the Abraham Lincoln Hotel at 7:00 P. M., Wednesday, and every member of the Illinois State Medical Society present at the meeting should participate in this event.

The past presidents of the Society are honor guests at the dinner although they will not be asked to make any speeches. The immediate past-president, Dr. Charles S. Skaggs, will act as toast master at the President's Dinner.

The Chairman of the Council, Dr. I. H. Neece, will present the President's Certificate to Dr. Reed following the dinner service. The complete program for the Dinner will be released on Wednesday evening.

Following the Dinner, the President's dance will be given with a good orchestra on hand, and those desiring to play bridge will be cared for, and suitable prizes awarded to the winners.

### DO NOT FORGET THE PRESIDENT'S DINNER.

#### VETERAN'S SERVICE COMMITTEE DINNER

The annual dinner of the Veterans' Service Committee will be held on Tuesday Evening, May 19, 1936 at the Abraham Lincoln Hotel. Dr. F. O. Fredrickson, Chairman of the Committee will act as toastmaster for the occasion, and all members of the Society and guests desiring to attend this interesting function whether ex-service men or not, are welcome. An interesting program following the dinner has been arranged.

#### PROGRAM

"The Duties of the Post and District Surgeons of the Medical Commission of the American Legion."

E. Ralph May, Department Surgeon, Department of Illinois, Chester.

"Veterans' Legislation as It Affects the Medical Profession."

R. L. Sensenich, Member of the Legislative Committee on Veterans' Affairs, Amer-

ican Medical Association; President, Indiana State Medical Association, South Bend, Indiana.

"The Mission of the American Legion."

J. Bernard Murphy, Commander, American Legion, Department of Illinois, Bloomington.

#### THE STAG

When? *Tuesday Evening, May 19, 1936 at 9:00 o'clock.*

Place? Ball Room of the Abraham Lincoln Hotel.

Nature? A good evening's entertainment—refreshments and an excellent opportunity to renew old friendships.

The cost? Admission by ticket only, the tickets presented at the registration booth to all men who register—and it is free.

**FOR MEN ONLY!—DO NOT FORGET THE STAG.**

#### ALUMNI AND FRATERNITY LUNCHEONS

All alumni and Fraternity luncheons held during the 1936 annual meeting are scheduled for Wednesday noon. Complete information concerning these luncheons may be found on the bulletin boards, or procured at the registration and information booth.

#### GOLF ENTHUSIASTS

Golfing medicos attending the annual meeting will have the exceptional opportunity of playing on the beautiful eighteen hole Illini Country Club Course, and for their benefit there will be held a handicap tournament on Tuesday morning, with suitable prizes, and luncheon served at noon.

Foursomes and twosomes from various cities will contest and the committee in charge will gladly arrange a game for those golfers who are alone.

Any information desired relative to golfing or these matches can be procured from members of the golf committee, or Dr. Fred P. Cowdin, chairman, who will be on hand.

#### MEETINGS OF THE HOUSE OF DELEGATES

*Tuesday Afternoon, May 19, 1936*

#### Ladies Parlor

3:00—First Meeting of the House of Delegates, called to order by the President, Charles B. Reed, for Reports of Officers, Councilors, Committees, introduction of resolutions, and for the transaction of other

business which may come before the House.

*Thursday Morning, May 21, 1936*

Ladies Parlor

8:30—Second Meeting of the House of Delegates, called to order by the President, for the election of officers, councilors, committees and delegates and alternates to the American Medical Association. Reports of Resolution Committee and action on same, and for the transaction of other business that may come before the House.

#### SECRETARIES' CONFERENCE

C. D. Snively, *Chairman*.....Ipava

Donald W. Killinger, *Vice-chairman*.....Joliet

John W. Long, *Secretary*.....Robinson

*Tuesday Morning, May 19, 1936*

9:00-12:00—

Call to Order and opening remarks—C. D. Snively, Ipava.

Remarks by Charles B. Reed, President, Illinois State Medical Society, Chicago; and Rolland L. Green, President-Elect, Illinois State Medical Society, Peoria.

“Some Achievements of the Medical Relief Plan in Illinois.” Mr. H. P. Scott, Director of Medical and Dental Service, Illinois Emergency Relief Commission, Chicago.

Discussion opened by J. S. Templeton, Councilor, Tenth District, Pinckneyville.

“What County Secretaries Can Do for Organized Medicine,” Charles S. Skaggs, Councilor-at-large, East St. Louis.

Discussion opened by John R. Neal, Chairman, Legislative Committee, Springfield.

“Medical Economics—A Specialty.” A. M. Mitchell, Chairman, Committee on Secretaries' Conference for Indiana, and Secretary Vigo (Indiana) County Medical Society, Terre Haute, Indiana.

Discussion opened by H. N. Rafferty, Past President and Secretary, Aesculapian Society of the Wabash Valley, Robinson.

Question and Answer Period for County Society Secretaries.

Annual Election of Officers of Secretaries' Conference.

#### PEDIATRICIANS' MEETING

John R. Vonachen, *Chairman*.....Peoria

Arthur H. Parmelee, *Vice-Chairman*..Oak Park

Joseph K. Calvin, *Secretary*.....Chicago

*Tuesday Morning, May 19, 1936*

Columbus Hall

9:00-12:00—

“Congenital Pylorospasm.”—Orville Barbour, Peoria.

A report of ten years clinical study of various methods of treatment of congenital pylorospasm, including a review of the comparative effects of atrophine, phenobarbital and irradiation. There follows favorable observations made during the past five years with the use of whole suprarenal gland and thyroid therapy in 54 cases of this clinical condition. The type of feeding which seems more desirable is then discussed.

Discussion opened by G. L. Kaufman, Chicago; and Ray Armstrong, Champaign.

“Physical Impairments of Deaf Children,” George L. Drennan, Jacksonville.

This paper is a resume of physical findings of a group of deaf children who have entered school this year. The first part is given over to a brief discussion of the causes of deafness. The discussion of the physical impairments forms the basis of the paper. The high percentage of grave physical defects other than deafness prompted this report. There is a discussion of the prevention of deafness and physical impairments. This section of the paper is largely given over to preventive measures.

Discussion opened by Robert Cook, Springfield.

“Some of the More Serious Conditions Encountered in the Newborn,” Arthur Parmelee, Chicago.

A discussion of the etiology, symptoms and treatment of the more serious pathologic conditions encountered in the new-born. Special emphasis on the respiratory and circulatory disturbances, intracranial birth injuries and prematurity. A discussion of symptoms and signs which will aid in the early recognition of serious conditions together with practical suggestions concerning prevention and treatment.

Discussion opened by Sam Hoffman, Chicago; and W. L. Crawford, Rockford.

“Recent Advances in Therapeutic Procedures in Pediatrics,” Julius H. Hess, Chicago.

Veinoclysis (lantern slides).

Blood transfusion—Strauss technique, Spivak technique.

Administration of intra-peritoneal fluids.

Wangensteen suction apparatus in intestinal obstruction.

Trocar method operation for empyema and thoracotomy.

Method operation for empyema—Bettman.

Irrigation apparatus for after treatment of empyema.

Strapping of umbilical hernia.

Inguinal hernia—Home made truss for very small infants.



Spinal puncture in small infants—Glaser.  
 Cisternal, jugular and longitudinal puncture.  
 Pyloric stenosis operative procedure.  
 Discussion opened by John F. Carey, Joliet;  
 and O. E. Ehrhardt, Springfield.  
 "Breast Feeding." Round Table Discussion,  
 11:30 A. M. Clifford Grulee, Chicago,  
 Presiding.  
 "Statistical Review of the Situation." Clif-  
 ford Grulee, Chicago.  
 "Relation to Supplementary Feeding in the  
 Newborn." Henry Poncher, Chicago.  
 "Public Health Point of View." Henry Nib-  
 lack, Chicago.  
 "From the Standpoint of Practice." Gerald  
 Cline, Bloomington.

#### PEDIATRICS PAPERS IN SCIENTIFIC PROGRAMS

*Tuesday, May 19, 2:30 P. M.*

##### SECTION ON RADIOLOGY

Dr. John A. Bigler, Highland Park. "Inter-  
 pretation of Hilus Shadows in Chest X-Rays  
 of Children."  
 Discussion by D. O. N. Lindberg, Decatur;  
 and Joseph K. Calvin, Chicago.

*Tuesday, May 19, 2:30 P. M.*

##### SECTION ON PUBLIC HEALTH AND HYGIENE

Dr. Winston Tucker, Springfield, "Treatment  
 of Meningococcic Meningitis with Meningo-  
 coccus Antitoxin."

Discussion by Thomas D. Masters, Springfield.

*Tuesday, May 19, 3:00 P. M.*

##### SECTION ON PUBLIC HEALTH AND HYGIENE

Dr. Paul H. Harmon, Chicago; and Dr. H.  
 N. Harkins, Chicago. "Occurrence of Ver-  
 cidal Substances in Patients with Poliomye-  
 litis: Bearing on Serum Treatment and  
 Vaccination."

Discussion by H. J. Shaughnessy, Springfield.

*Tuesday, May 19, 3:30 P. M.*

##### SECTION ON PUBLIC HEALTH AND HYGIENE

Dr. Sidney O. Levinson, Chicago. "A Five  
 Year Review of Anterior Poliomyelitis in  
 the Chicago Area."

Discussion by Julius Hess, Chicago.

*Tuesday, May 19, 4:00 P. M.*

##### SECTION ON PUBLIC HEALTH AND HYGIENE

Dr. Scott Wilkinson, Decatur. "Epidemic  
 Respiratory Diseases in Early Life."

Discussion by J. Howard Beard, Urbana.

*Tuesday, May 19, 4:30 P. M.*

##### SECTION ON PUBLIC HEALTH AND HYGIENE

Dr. Maurice L. Blatt, Chicago. "Cross In-

fection—Its Prevention in a Children's Hos-  
 pital."

Discussion by Archibald Hoyne, Chicago.

*Tuesday, May 19, 5:00 P. M.*

##### SECTION ON PUBLIC HEALTH AND HYGIENE

Dr. Henry C. Niblack, Chicago, "How to Re-  
 duce Infant Mortality."

Discussion by John Carey, Joliet.

*Wednesday, May 20, 9:30 A. M.*

##### SECTION ON EYE, EAR, NOSE AND THROAT

Dr. J. Bellows, Chicago, "Treatment of Oph-  
 thalmia Neonatorum."

Discussion by Harry O. Williams, Centralia;  
 Wm. R. Fringer, Rockford; Jos. F. Duane,  
 Peoria.

*Wednesday, May 20, 2:30 P. M.*

##### SECTION ON SURGERY

Dr. Herman L. Kretschmer, Chicago. "Renal  
 Tuberculosis in Childhood and Adolescence."

Discussion by Frank N. Evans, Springfield.

*Wednesday, May 20, 4:50 P. M.*

##### SECTION ON MEDICINE

Dr. Lee Frech, Decatur, "Present Status of  
 Immunization Against Contagious Dis-  
 eases."

Discussion by John R. Vonachen, Peoria.

*Wednesday, May 20, 5:00 P. M.*

##### SECTION ON EYE, EAR, NOSE AND THROAT

Dr. J. R. Lindsay, Chicago. "Chronic Sinus  
 Disease in Children."

Discussion by Theo. E. Walsh, Chicago; Louis  
 Ostrum, Rock Island; Thomas C. Galloway,  
 Evanston.

##### OBSTETRICIANS' AND GYNECOLOGISTS' MEETING

W. M. Cooley, *Chairman*.....Peoria  
 Ralph A. Reis, *Secretary*.....Chicago

*Tuesday Morning, May 19, 1936*

##### Library

9:00—"Sarcoma of the Uterus."

Wm. T. Carlisle, Chicago.

A survey is presented on the literature of Sarcomata  
 of the Uterus with an intimate review of the cases at  
 St. Luke's Hospital in the past five years. A patho-  
 logical classification is advanced with a lantern slide  
 demonstration depicting the gross and histological types.

The salient features of this series have been sum-  
 marized with especial reference made to the etiological  
 considerations, the presenting symptoms, the physical  
 and operative findings, the various operative proced-  
 ures, the type of tumor and radiation factor, and the  
 prognosis. The outstanding conclusion deduced is the  
 high frequency of error made not only in the pre-  
 operative diagnosis, but in the operative diagnosis and  
 the pathological diagnosis as well.

The difficulty in recognition of this condition is evidenced and the reasons pointed out, but the suggestion is made that, although infrequent, these sarcoma should be considered in the differential diagnosis of uterine tumors.

Discussion opened by Richard K. Collins, Aurora.

9:30—"Gyneplastic and Minor Operations Immediately Following Delivery." O. H. Crist, Danville.

Need of repair operations following delivery. Opposition of early teaching to this procedure. Some pioneers in this work. Technique of operations. Brief summary of 71 cases.

Discussion opened by Frank F. Maple, Chicago.

10:00—"Medical Disorders in Pregnancy—(and their effect upon Labor)." William B. Serbin, Chicago.

Heretofore, certain medical disorders have been regarded as factors complicating pregnancy, the latter being looked upon as a primary disorder and the disease as secondary. At the present time, this concept has been reversed. Obviously, in such disorders as cardiac, thyroid and chronic renal disease, diabetes, tuberculosis, the anemias and others, with pregnancy superposed, the medical aspects of the case are of primary importance and the obstetric aspects secondary. This does not imply that the pregnancy is of little or no consequence, but treatment is first directed toward the primary medical requirements of the case and the course of the pregnancy observed in accordance with the patient's response as well as effect on her general health. Cases are cited to show that intelligent medical management not only assures a more successful outcome with reference to pregnancy alone but that the general health is likewise improved, whenever the internist's cooperation is desirable.

Discussed opened by Charles C. Rentfro, Chicago.

10:30—"Endometriosis." W. A. Malcolm, Peoria.

Endometriomata are tumors arising in or near the female pelvis. They are composed of tissue resembling endometrium which is made up of glandular tissue with typical stroma and round cell infiltration. This tumor menstruates, enlarges slowly, invades tissue progressively, is curable and is not malignant, and after the menopause or castration, retrogresses and atrophies. This is the only tumor that has a definite cure by removal of the ovarian hormone.

The history and literature of endometriomata are reviewed. The various theories developed to explain the occurrence of these tumors are discussed. Their location, pathology and symptomatology are described. The treatment is outlined, emphasis being laid on the relationship between their occurrence and the menstrual life of the patient.

Discussion opened by D. D. Smith, Decatur.

11:00—"The Treatment of Antepartum Hemorrhage." M. Edward Davis, Chicago.

Hemorrhage in pregnancy is always a serious symptom indicative of serious pathologic complications. It is one of the major causes for maternal morbidity and mortality. During the first trimester of pregnancy abortion and ectopic gestation are the most common causes for bleeding. Hemorrhage rarely occurs during the middle trimester. In the last trimester placenta praevia and abruptio placentae are the most important etiologic causes. Good results depend on an accurate diagnosis, careful preparation of the patient and individualized treatment. Broad principles of treatment can be laid down to guide this individualized treatment. These principles in use at the Chicago Lying-in Hospital have done much to improve our results in the treatment of these complications.

Discussion opened by Floyd L. Heinemeyer, Rockford.

11:30—"Postpartum Hemorrhage in Outpatient Obstetrics." Henry Buxbaum, Chicago; and I. C. Udesky, Chicago.

This article deals with 455 cases of post-partum hemorrhage occurring in 10,651 consecutive deliveries conducted in the home by the Chicago Maternity Center.

In this analysis is shown the relative importance of such factors as parity, multiple pregnancies, operative interference, prolonged labors, size of foetus and management of third stage of labor in relation to the incidence of post-partum hemorrhage.

The management of post-partum hemorrhage in the home is discussed.

12:00—"The Early Diagnosis of Cancer of the Cervix." Charles E. Galloway, Evanston.

A few slides compiled by Dr. Galloway, together with slides from Schiller, will be shown. A study of Cervical Carcinoma in Evanston and material relative to tristratification of portio epithelium preceding or associated with carcinoma will be discussed.

Discussion opened by F. R. Towner, Elgin.

#### WOMEN PHYSICIANS' MEETING

The women physicians of Illinois, all of whom are members of the Illinois State Medical Society, will hold their special meeting on Tuesday morning, May 19, 1936.

9:30—Breakfast at the Leland Hotel.

The program will be devoted to the subject of Maternity and Infant Hygiene. Dr. Carolyn MacDonald will give an address on Syphilis—a problem in prenatal care.

Dr. Bertha VanHoosen will talk on plans for Maternal Mortality Studies which are to be made by women physicians in many countries throughout the world to be presented at the International Meeting in Edinburgh in 1937.

A beautifully illustrated lecture which has



been prepared by Dr. VanHoosen from the Century of Progress exhibit on Maternity Hygiene will be presented. This lecture is designed for public education and women doctors will find it suitable for their talks before Women's Clubs, Parent-Teacher Associations and all civic groups.

All women doctors are urged to attend this session to meet old friends and enjoy this special occasion as well as the regular sessions of the Illinois State Medical Society for the following three days.

Dr. Elizabeth B. Ball, President of the Medical Women of Illinois, will officiate at this meeting.

#### FRACTURE DEMONSTRATIONS

Drs. Philip H. Kreuscher and George Staben, of the Fracture Committee, are arranging to have fracture demonstrations at the meeting similar to those conducted over a period of several years at the annual meeting.

The demonstrations will be given on Tuesday morning, and at other hours during the meeting so that they will not interfere with the regular programs. A complete schedule of these demonstrations will be posted at the registration booth, and will be announced during the meeting.

The following have been invited to participate in these demonstrations:

F. N. Cloyd.....	Danville
Harold A. Vonachen.....	Peoria
J. H. Finch.....	Champaign
J. B. Moore.....	Benton
F. J. Otis.....	Moline
J. S. Bell.....	Hoopeston
R. J. Mroz.....	Rockford
George Apfelbach .....	Chicago
Jas. J. Callahan.....	Chicago
Arthur Conley .....	Chicago
Daniel Levinthal .....	Chicago
Frank Murphy .....	Chicago
E. J. Berkheiser.....	Chicago

Complete details will be announced at the meeting.

#### SCIENTIFIC EXHIBITS

KNIGHTS OF COLUMBUS CLUB

MAIN FLOOR LOBBY

Booth A. "Medical Economics."  
Bureau of Medical Economics, American Medical Association.

A series of posters and charts showing the distribution of physicians, and Uni-

versity and College Student Health Activities.

Booth B. "Statistical Studies."  
Illinois Department of Public Health, Springfield, Illinois.

Graphical illustrations with units showing trends of mortality and morbidity with age and geographical distribution concerning,

- (a) All death causes
- (b) All notifiable diseases
- (c) Heart and cancer
- (d) Measles, whooping cough, diphtheria and scarlet fever

Booth C. "Health and Educational Exhibit."  
Illinois State Planning Commission, Robert Kingery, Chairman. Henry L. Kellogg, State Planning Engineer.

The exhibit illustrating population trends, density and income, commitments to penal and insane institutions, morbidity and mortality from certain communicable diseases, heart disease and cancer. Other interesting charts illustrating many prevalent economic conditions in Illinois.

Booth D. "The Medical Library."  
Sangamon County Medical Society, Springfield, Illinois.

Showing how a county medical society can conduct its own library, selected volumes from the medical library maintained by the Sangamon County Medical Society with placards demonstrating the organization, economic management and advantages of this useful function of a County Medical Society.

#### STAGE

Booth E. "Demonstration of Collapse Therapy in Pulmonary Tuberculosis."  
Chicago Municipal Tuberculosis Sanitarium, Chicago, Illinois.

A series of X-Ray pictures showing the lungs before and after collapse therapy. The various procedures to collapse the diseased lungs are shown graphically.

Booth F-G. "Electrosurgical Obliteration of the Gall Bladder."

Max Thorek, Surgical Service — Cook County and American Hospitals, Chicago, Illinois.

A series of 155 consecutive cases where electrosurgical obliteration of the gall bladder was done is shown graphically, with technique of the procedure, information concerning the cases, and the accumulated statistics shown by graphs, radiograms and motion pictures.

Booth H. "Clinical and Experimental Studies in Cerebrospinal Fluids."

Abraham Levinson and David S. Cohn, Chicago, Illinois.

Simple quantitative method for determin-

ing of dextrose in cerebrospinal fluid. Comparative value of lumbar and cisternal fluids in the diagnosis of meningitis. Enzymes in cerebrospinal fluid.

Booth I. "Indications for Peroral Endoscopy."

Paul H. Holinger, Bronchoscopic Clinics of Research and Educational Hospital, University of Illinois, St. Luke's Hospital and Children's Memorial Hospital, Chicago, Ill.

X-Ray films of cases in which the diagnosis or treatment was carried out endoscopically. Bronchoscopes and esophagoscopes mounted in a lighted cabinet giving the endoscopic views of the pathology seen in these cases. Informative charts showing the problem of the foreign body.

Booth J. "Neuropsychiatric Relationships to General Medicine."

Groves Blake Smith, Godfrey, Illinois.

An exhibit prepared for the Section on Nervous and Mental diseases, of the American Medical Association, representing a typical analysis and relationships of the psychoneuroses as well as comprehensive relationships of the neuropsychiatric aspects of general medicine, emphasizing its community relationships.

Booth V. "Cutaneous Manifestations of Syphilis."

Clark W. Finnerud, Representative for the Scientific Exhibit Committee of the Section on Dermatology and Syphilology of the American Medical Association, Rush Medical College of the University of Chicago, Chicago, Illinois.

A photographic demonstration of practically all of the clinical cutaneous manifestations of congenital and acquired syphilis assembled from the collections of a number of dermatologists. Transparencies will illustrate the pathologic changes of the disease in its various forms in the skin.

MAIN EXHIBITION HALL

Booth K. "Constitution and Cancer."

American Society for the Control of Cancer, New York City. Arthur H. Estabrook.

An interesting exhibit of charts and living material in the shape of mice to show the constitutional factors in the production of cancer in animals.

Booth L. "Radium and Radium Therapy."

Frank E. Simpson, Frank E. Simpson Institute of Radium Therapy, Chicago, Ill.

Model of radon machine showing method of extracting radon gas from a solution of radium. Diagrams explaining operation of radon machine, radium bearing ores, tubes, tube holders, applicators, and instruments. Photographs and diagrams illustrating various phases of the handling of radium.

Booth M. "Electric Stethoscope and Stethograph."

Joseph K. Narat, Chicago, Illinois.

A new apparatus for the amplification of heart sounds. Headphones allow auscultation while a registering apparatus allows recording of heart sounds. The curve therefore is seen and written at the same time. No photographic camera is necessary with this apparatus.

Booth N. "Radiographic Study of Anatomy."

Harold O. Mahoney, Northwestern University Medical School, Chicago, Illinois.

A radiographic study has been made of the actions of the body, transverse, coronal and sagittal. Advantages of this type of study thoroughly explained, as it permits a thorough study of the section without disturbing or destroying it.

Booth O. "Effect of Metabolic Disturbances of Teeth."

I. Schour and A. G. Brodie, University of Illinois College of Dentistry, Chicago, Ill.

An exhibit of photomicrographs, charts and roentgenograms showing the effects of various metabolic disturbances on teeth.

Booth P. "Edema and Blood Pressure as Influenced by Minerals."

M. Herbert Barker, Renal Clinic, Northwestern University Medical School, Chicago, Illinois.

A series of charts. Edema of renal diseases have been studied under controlled metabolic conditions. The influence of individual basic and acid ions on the edema is recorded and graphed. Simultaneous observations of the mineral effect upon blood pressure and renal function is presented.

Booth Q. "The Infant's Stool."

Jesse R. Gerstley, Katharine M. Howell and David J. Cohn, Michael Reese Hospital, Chicago, Illinois.

Microscopic slides, drawings and charts as well as models of stools; demonstrating the effect upon fecal flora and fecal acidity of different types of diet and formulas used in infant feeding.

Booth R. "Permanent Identification of the New Born."

Gilbert P. Pond, West Suburban Hospital, Oak Park, Illinois.

Technique of obtaining infant palm prints. Charts illustrating an original classification of the papillary ridge patterns of the palm. Filing of classified cards for ready reference.

Booth S. "The Pigmentations of the Skin, Including Neoplasms."

S. William Becker, Section of Dermatology, University of Chicago, Chicago, Illinois. Photographs of clinical cases, microscopic drawings, photomicrographs and charts



- outlining fundamental principles of normal and pathologic pigmentation.
- Booth T. "Sweat: Physiological and Biochemical Studies."  
Theodore Cornbleet, E. R. Pace and H. C. Schorr, University of Illinois Medical School, Chicago, Illinois.  
Analyses of sweat from normal persons and those with certain skin disorders will be compared, and the difference shown. An exposition will be made of how the sweat as a reducing agent conditions the skin surface.
- Booth U. "Tumors of the Skin."  
Erwin P. Zeisler, Northwestern University Medical School, Chicago, Illinois.  
Sixty clinical photographs mostly in color exhibiting the principal gross and histologic varieties of cutaneous neoplasms has been arranged to assist the general practitioners in the recognition of the commoner and some of the rarer tumors of the skin, both benign and malignant.
- Booth W. "Vitamin C: Cevitamic Acid."  
Arthur F. Abt, Northwestern University Medical School, Chicago, Illinois.  
The metabolism of Cevitamic Acid in infants and children. A series of charts showing normal values for cevitamic acid (reduced) in the blood plasma of infants and children from birth to 13 years. Demonstrations of microchemical technique and capillary fragility apparatus.
- Booth X. "The Incidence of Arteriosclerosis."  
N. S. Davis, III, Department of Pathology, Northwestern University Medical School, Chicago, Illinois.  
Charts illustrating the gross and age incidence of arteriosclerosis of the aorta and coronary arteries and arteriosclerotic scars of the myocardium and kidneys, coronary thrombosis, arteriosclerotic changes in the kidneys, cerebral hemorrhage and thrombosis.
- Booth Y. "Diabetic Coma, Its Prevention and Treatment."  
R. T. Woodyatt, Chicago, Illinois.  
Charts illustrating methods for the prevention and treatment of diabetic coma.
- Booth Z. "Glands of Internal Secretion."  
W. O. Thompson, Arthur Dean Bevan, N. J. Heckel, P. K. Thompson and S. G. Taylor, III, Rush Medical College: Presbyterian and Cook County Hospitals, Chicago, Illinois.  
A series of charts and photographs covering recent original work on the pathological physiology of the thyroid; the pituitary gland, the nature of Addison's Disease and its treatment with an active adrenal cortex extract; a consideration of the gonads and other endocrine glands.
- Booth AA. "The Diagnosis and Management of Upper Abdominal Problems."  
J. Donald Milligan, Pelton Clinic, Elgin, Illinois.  
This exhibit will present at least four upper abdominal problems plus a miscellaneous group of interesting cases. The four problems will be gastric ulcer, duodenal ulcer, gastric cancer and small bowel obstruction. Several interesting cases of other types will also be presented.
- Booth BB. "First Aid in Eye Injuries."  
Thomas D. Allen and Glenway W. Nethercut, Illinois Eye and Ear Infirmary, Chicago, Illinois.  
Models, charts, photographs, etc., picturing various types of eye injuries, and the methods of providing proper first aid attention for them.
- ROOM OFF MAIN EXHIBITION HALL
- Booth CC. "Pathology of Amebiasis."  
R. H. Jaffe, Department of Pathology, Cook County Hospital and Cook County Graduate School of Medicine, Chicago, Illinois.  
The exhibit is planned to consist of museum specimens showing the different forms of lesions that occur in the intestinal tract and in the liver in infections with *entamoeba histologica*. Other types of ulcerative lesions occurring in the intestine will be shown for comparative purposes.
- Booth DD. "The Nephrotic State."  
Harold C. Lueth, Department of Medicine, University of Illinois College of Medicine, Chicago, Illinois.  
Drawings and diagrams showing the clinical syndrome, gross specimen photomicrographs, outline of treatment, etc. Illustration showing the altered physiology and the mechanism of edema.
- Booth EE. "Carcinoma of Colon and Rectum."  
M. H. Streicher, University of Illinois College of Medicine, Chicago, Illinois.  
Drawings and diagrams showing the entire clinical course of the disease, gross specimens, photomicrographs, x-ray demonstration of various clinical types, and outline of acceptable treatment.
- Booth FF-GG. "Treatment of Pneumonia."  
Robert W. Keeton, University of Illinois College of Medicine, Chicago, Illinois; Ford K. Hick, Chicago, Illinois.  
Demonstration of Neufeld technique of typing pneumonia; problems in feeding the pneumonia patient; the use of the nasal catheter to administer oxygen, with demonstration of the apparatus, and a motion picture showing the proper placing of the catheter will be a part of the

exhibit. Competent demonstrators will be on hand to show these interesting features.

#### ADJOINING CHECK ROOM

Booth II. "U. S. P., N. F., and N. N. R. Preparations."

Illinois Pharmaceutical Association. H. H. Zorn, Pres. I. Ph. A. O. U. Sisson, Chairman U. S. P. and N. F. Committee.

This exhibit consists of preparations from the New United States Pharmacopea XI, and National Formulary VI, which becomes official June 1, 1936. There are about fifty 12-ounce bottles properly labeled.

Booth HH. "The Leucopenic Index in Allergy."

Michael Zeller, M. D., Chicago, Illinois.

This exhibit consists of a series of charts defining leucopenic index, illustrating the various types of leucocytic responses to food and inhalant allergens, illustrations of the value of the method in allergy, a new aid in the diagnosis of allergy.

Booth JJ. "Interesting Bone Lesions."

L. M. Hilt, Radiologist, and F. W. Light, Pathologist, St. John's Hospital (Clinical Laboratory), Springfield, Illinois.

Shows several x-ray films of interest, and some rather rare lesions of bone.

#### WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

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#### PROGRAM

*Monday, May 18, 1936*

1:00—Registration.

*Tuesday, May 19, 1936*

10:00—Board Meeting, Abraham Lincoln Hotel.

11:30—Conference of members with the following State Chairmen: Legislative, Hygeia, Public Relations, Organization of Committees.

12:00—Luncheon, Public Relations—Abraham Lincoln Hotel.

4:00 to 5:30—Tea at the Executive Mansion.

7:00—Bridge Dinner, St. Nicholas Hotel. Mrs. W. D. Chapman, presiding.

*Wednesday, May 20, 1936*

8:00—Board Breakfast, Abraham Lincoln Hotel.

9:30—Business Session and Memorial Service.

1:00—President's and Past President's Luncheon (Mrs. W. D. Chapman, presiding). Introduction of the incoming president, Mrs. F. P. Hammond, and of the newly elected officers of the Illinois State Board Woman's Auxiliary.

Visitors will please register for one of the following tours at 3:30 P. M.

1. Drive over the Vachel Lindsay Nature Trail on Lake Springfield with lectures and explanations by Rev. George M. Link, Nature Lecturer and official guide.

2. A tour of state and biologic laboratories allowing one hour for each laboratory.

3. A tour of Abraham Lincoln's residence, tomb and state Historical Library.

These tours will all be taken at 3:30 P. M.

7:00—President's dinner and dance, Abraham Lincoln Hotel.

*Thursday, May 21, 1936*

9:00—Post Convention Board Meeting, Abraham Lincoln Hotel.

#### GENERAL SESSIONS

##### OPENING MEETING

*Tuesday Afternoon, May 19, 1936*

##### COLUMBUS HALL

1:00—Eighty-Sixth Annual Meeting of the Illinois State Medical Society officially opened by the President, Chas. B. Reed, Chicago.

1. Invocation—Rev. Jerry Wallace, Pastor, Christ Episcopal Church, Springfield.

2. Address of Welcome—Hon. John W. Kapp, Mayor of Springfield.



3. Address of Welcome—George Staben, Springfield, President Sangamon County Medical Society.

4. Report of Chairman, Committee on Arrangements—R. F. Herndon, Springfield.

5. Adjournment for Oration in Medicine.

1:30—Oration in Medicine.

"The Career of a Heart," Ralph A. Kinsella, St. Louis, Missouri. (By invitation.)

*Wednesday Morning, May 20, 1936*

11:00—Oration in Surgery—"A Critical Review of 822 Operations on the Adrenal-Sympathetic System with Special Reference to Essential Hypertension," George Crile, Cleveland, Ohio. (By invitation.)

*Wednesday Afternoon, May 20, 1936*

1:30—President's Address—Charles B. Reed, President, Illinois State Medical Society, Chicago.

*Thursday Morning, May 21, 1936*

Induction of the President-Elect.

Immediately following the close of the last meeting of the House of Delegates, Dr. Rolland L. Green will be inducted into the office of President of the Illinois State Medical Society, by the retiring President.

#### SECTION PROGRAMS

#### SECTION ON MEDICINE

George Parker.....Chairman  
James G. Carr.....Secretary

*Tuesday Afternoon, May 19, 1936*

#### COLUMBUS HALL

2:30—"Low Dosage Irradiation of the Pituitary and Adrenals for Treatment of Non-Nephritic Hypertension."—James H. Hutton, Chicago.

This work, now in progress more than three years, based on the theory that most cases of essential hypertension are due to functional abnormality of the pituitary and adrenals and that this abnormality can be corrected in part by irradiation of these two organs with very small doses of the x-ray. Evidence and experimental work are summarized. Technique of treatment. Results—reduction in blood pressure, relief of symptoms and certain other phenomena. Statistics—our own and those of other men. Conclusions.

Discussion opened by Hermon H. Cole, Springfield.

2:50—"Miners' Hand—A Vasospastic Disease

of the Hands of Miners Due to Vibration."—C. H. Drenkhahn, Urbana.

This syndrome is not infrequent in miners. It consists of a numbness and a dull aching sensation in the hands. Vasospastic phenomena can be demonstrated. Arteriograms will be shown. Miners experience considerable vibration in the hands while handling their picks, and undoubtedly this is the etiologic factor. This syndrome has never before been described in miners, although a similar syndrome has been described in pneumatic hammer workers and shoe factory workers. Therapy is discussed. Because coal mining is such an important industry in Illinois this syndrome warrants description before the Medical Society.

Discussion opened by Harold Voris, Chicago.

3:10—"The Medical Significance of Unrecognized Perforated Peptic Ulcer."—Harry A. Singer, Chicago.

It is generally assumed that the symptoms of perforated peptic ulcer are remarkably uniform and that the diagnosis therefore entails no difficulty. A comprehensive clinical and reentgenologic study indicates however, that a considerable percentage of ruptured ulcers do not present the classical picture and as a result are usually misdiagnosed. The failure to recognize atypical perforation explains many apparent clinical mysteries encountered by medical men.

Discussion opened by J. Donald Milligan, Elgin.

3:30—"Ketosis in the Treatment of Epilepsy—Effects of Diacetone Alcohol on Institutional Epileptics."—Isidore Finkelman, Elgin, W. Mary Stephens, Louis B. Shapiro, and DeLester Sackett.

In order to determine whether the acetone bodies developed in the course of the ketogenic diet are the factors that inhibit epileptic convulsions, we treated eleven institutional epileptic patients with diacetone alcohol. The anticonvulsant properties of this drug were demonstrated by the experiments of Keith. Two to six drams of the drug were given daily during two periods of treatment. The first period was from forty to fifty days and the last period was fifty days. There was an intervening period of twenty-five days during which no medication was given. It was found that diacetone alcohol was not anticonvulsant in institutional epileptics. A discussion of the probable mode of action of the ketogenic diet is given.

Discussion opened by T. T. Stone, Chicago.

3:50—"Acute Coronary Occlusion: Points on Diagnosis and Treatment."—Harry A. Richter, Wilmette.

An arbitrary division of the patients according to their predominating symptoms is an aid to diagnosis, and a careful history, supplemented by serial four-lead electrocardiograms, often makes the diagnosis clear. Three case histories illustrating the so-called "silent" group are given in abstract.

A short film of the changes noted in serial four-lead electrocardiograms will be shown, and the importance of the prolonged period of absolute bed rest stressed.

Discussion opened by James A. Walsh, Peoria.

4:10—"Pneumothorax Treatments for Outpatients."—Fred M. Meixner, Peoria.

Pneumothorax treatments are simple. Indications and contraindications. Use in cases of early or minimal tuberculosis. Supplants institutional care in selected cases. Should be available to hospital, home and office patients. Uses in bronchiectasis. Typical case reports.

Discussion opened by Alen H. Hraby, Chicago.

4:30—"Various Activities of the Beating Heart."—Emmet Keating, Chicago.

If health is to be maintained, the rhythm of the heart must be maintained. Interference with common physical laws that have to do with the work of the heart disturbs rhythm.

Heart symptoms are not always indicative of heart disease.

A good history and detailed physical examination. Fluoroscopic study at different angles determines number of films for visual record. Electrocardiogram. Urine and blood examination. All of these are necessary.

Discussion opened by Warren Pearce, Quincy.

### *Wednesday Morning, May 20, 1936*

#### COLUMBUS HALL

Joint Session with Sections on Surgery and Public Health and Hygiene.

#### SYMPOSIUM ON AMEBIASIS

8:30—"Contagion and Public Health Aspect of Amebiasis."—Mr. Joel I. Connolly, Chicago.

This paper will give a brief summary of the findings in the outbreak of epidemic amebic dysentery having a focus in two Chicago hotels in 1933.

The reasons for believing that contamination of water through faulty plumbing was the principal cause of the outbreak will be presented, and the specific defects and methods of correction will be given. The lessons resulting from the epidemic, which are generally applicable, will be summarized.

Illustrative material will be used if possible.

Discussion opened by Clarence W. Klassen, Springfield.

8:50—"The Clinical Aspects of Amebiasis."—Samuel E. Munson, Springfield.

1. Blood may or may not be found in the stools, depending on the acute or chronic types.
2. Discomfort and pain in lower abdomen.
3. Poor appetite.
4. Leukocytes increased.

5. Where blood is not observed in the stools, occult blood is found.

6. Slides showing types of organism and effect on the tissues.

9:10—"The Laboratory Diagnosis of Amebiasis."—Bertha Kaplan Spector, Chicago.

9:30—"The Medical Management of Amebiasis."—Arthur E. Mahle, Chicago.

9:50—"Surgical Problems in Amebiasis."—Gatewood, Chicago.

Discussion of the surgical pathology involved in Amebiasis.

Disease is primarily medical. Surgery is limited to complications. The following complications are discussed:

1. Liver abscess with
  - a. subphrenic involvement,
  - b. empyema,
  - c. lung involvement.
2. Involvement of cecum and appendix.
3. Neoplasm-like masses of the large bowel.
4. Perforations of the bowel with local or general peritonitis.
5. Affections of the skin.
  - a. about enterostomy stomata,
  - b. about the rectum.
6. Cerebral abscess.

The importance of accurate differential diagnosis and the avoidance of surgery in acute amebic dysentery is discussed.

10:10—Opening Discussion (Pathological).—R. H. Jaffe, Chicago.

10:25—Public Health Discussion.—Mr. Clarence W. Klossen, Springfield.

10:30—Medical Discussion.—E. F. Traut, Chicago.

10:35—Closing Discussions.

### *Wednesday Afternoon, May 20, 1936*

#### COLUMBUS HALL

2:30—Chairman's Address:—"Problems Encountered in the Interpretation of Mechanical and Laboratory Aids to Diagnosis."—George Parker, Peoria.

2:50—"The Estimation of Liver Function in Hepatic Disease."—Edmund F. Foley, Chicago.

This paper will give a brief summary of the recognized functions of the liver. It will also consider the alterations of these functions as seen in disease and discuss the tests used for recognition of alterations of function. The diagnostic and prognostic value of these tests will then be given.

Discussion opened by Harold C. Ochsner, Waukegan.



3:10—"The Recrudescence of Malaria."—Tom Kirkwood, Lawrenceville.

The mosquito which transmits malaria is found in all parts of Illinois. Many inhabitants of certain parts of this state are carriers of this disease. The introduction of one of these carriers into what is considered a non-malarial region may easily lead to an outbreak of malarial fever. Hard roads, with consequent increase in travel, and shifts in population due to economic factors, are conducive to the dissemination of carriers and the spread of the disease.

Instead of having disappeared, malaria is on the increase in Illinois, and may be a menace in any part of the state.

Discussion opened by Leroy H. Sloan, Chicago.

3:30—"Infectious Mononucleosis."—Harry J. Isaacs, Chicago.

The typical and atypical symptoms and findings of infectious mononucleosis are mentioned with the differential diagnosis. The disease is easily confused with acute Leukemia, Influenza, Tuberculosis, Hodgkins, acute abdominal conditions, and those conditions associated with Jaundice, and prolonged causes of temperature. The value of the Heterophilic agglutination test as a specific test for the disease is stated; also the differentiation between serum sickness and the above. A brief review of the literature is presented with a report of three cases.

Discussion opened by Warner H. Newcomb, Jacksonville.

3:50—"Some Unusual Features of Lung Cancer."—Cecil M. Jack, Decatur.

Early diagnosis is important in cancer in general, but in cancer of the lung it is of paramount importance for even the slightest progress to be made. Considering the recent progress in thoracic surgery, it falls upon the clinicians to present the surgeons with operable cases. Among the problems that present themselves in the early diagnosis of lung cancer, that of differentiating metastatic from primary tumors has not received the attention it deserves. The present discussion is limited to this problem.

Discussion opened by Harry Magee, Peoria.

4:10—"A New Electric Stethoscope and Stethograph."—Joseph K. Narat, Chicago.

Rationale of sound recording.

Brief historical review of devices for registration of sounds.

Description of the new apparatus, which allows: 1. simultaneous auscultation of amplified sounds by several individuals; 2. visualization of the enlarged tracings on a screen; 3. simultaneous recording of heart sounds and arterial or venous pressure, without the use of a photographic camera and dark room.

Discussion opened by E. M. Stevenson, Bloomington.

4:30—"Skin Manifestations of Drug Intoxica-

tions."—Wm. J. Morginson, Springfield.

A description of the immediate and remote objective symptoms which may be a manifestation of dermatitis medicamentosa or drug intoxications with suggestions and procedures recommended for the avoidance of these eruptions. The drugs considered are those commonly prescribed, as arsenic, quinine, barbiturates, bromides, iodides, phenolphthalein, mercury, bismuth, etc.

Discussion opened by J. M. McCuskey, Peoria.

4:50—"Present Status of Immunization against Contagious Diseases."—Lee Frech, Decatur.

Any discussion of immunization would be amiss without a review of the factors of immunity. This paper deals with the various agents advocated for creating an artificial immunity; the phases of different types of immunity; and the importance of immunity upon the happiness of the individual and the welfare of the community.

Discussion opened by John R. Vonachen, Peoria.

*Thursday Morning, May 21, 1936*

COLUMBUS HALL

Joint Session with Sections on Surgery; Eye, Ear, Nose and Throat; Public Health and Hygiene; and Radiology

SYMPOSIUM ON VASCULAR DISEASES

8:30—"Etiology and Public Health Aspects of Vascular Disease."—C. Elliott Bell, Decatur.

Heart diseases are divided into etiological groups. The clinical importance and the public health problems connected with each group are discussed.

8:50—"Ocular Findings in Vascular Disease."

Kathryn Chapman, Chicago.

Changes in eyegrounds in vascular disease. The fundus in hypertension, arteriosclerosis and nephritis. How the oculist can help the internist. Vascular accidents in the eye.

9:10—"Vertigo as a Syndrome in Vascular Disease."—S. L. Shapiro, Chicago.

For the physician, vertigo may be defined as any subjective sensation of an abnormal character in which the patient feels himself to be in motion or feels that a portion or all of his surroundings are moving.

The sensation closely associated with the labyrinth and the cortical area corresponding to it has been shown by recent experiments to be adjacent to the end-station for audition.

Vertigo may be produced by a variety of factors, many seemingly entirely unrelated to each other; the reason for this is the great sensitivity of the vestibular centers and tracts in the brain stem to toxic conditions and their even greater sensitivity to vascular abnormalities. Differential diagnosis as the cause, includes two conditions, which must never be lost sight of when the

internist is attempting to diagnose or treat a case of vertigo presumably on a vascular basis; chronic ear infections, particularly with cholesteatoma, which may and often do exist unknown to the patient; and other diseases of the brain notably brain tumors and brain abscess.

The treatment includes the management of the primary vascular factor together with certain drugs which may be used to lower the sensitivity of the vestibular centers.

9:30—"The Diagnosis of Peripheral Vascular Disease."—George W. Scupham, Chicago.

9:50—"Cerebral Vascular Disease."—E. W. Cannady, East St. Louis.

This discussion of cerebral vascular disease will be confined to the vasospastic phenomena, cerebral arteriosclerosis and syphilitic endarteritis. The vasospastic phenomena are found in lead encephalopathy. Raymond's disease, and hypertensive encephalopathy. The clinical features, pathology and treatment of cases of hypertensive encephalopathy observed in the medical wards of the Barnes Hospital, St. Louis, and the Peter Bent Brigham Hospital, Boston, will be reported. The diagnosis of those types of cerebral vascular accidents due to arteriosclerosis and syphilitic endarteritis will be discussed briefly.

10:10—"Rentgenologic Aspect of Vascular Disease."—E. R. Crowder, Evanston.

A description of a new instrument used in studying the heart and great vessels, with suggestions as to practical application in the diagnosis and treatment of cardiac and vascular disease.

10:30—"The Surgical Management of Peripheral Vascular Disease."—Leo Zimmerman, Chicago.

Vascular diseases of interest to the surgeon are confined largely to those of the extremities, and include disturbances of the veins as well as the arteries. Venous lesions include varicosities and the different forms of thrombosis and phlebitis. The significance and treatment of these various types will be discussed. The most frequently encountered arterial lesions are arteriosclerosis, thrombo-angiitis obliterations and Raynaud's disease. Treatment varies with the amount of vascular spasm present. The indications for treatment and the management of these lesions in their various stages will be presented.

10:50—Opening Discussion, Medical—Ford K. Hick, Chicago.

11:00—Opening Discussion, Surgical—C. B. Ripley, Galesburg.

11:10—Opening Discussion, Eye, Ear, Nose and Throat—George H. Woodruff, Joliet.

11:20—Closing Discussions.

#### SECTION ON SURGERY

John A. Wolfer.....Chairman

C. Paul White.....Secretary

Tuesday Afternoon, May 19, 1936

#### COMMUNITY HALL

2:30—"Correlation of Clinical Treatment of Burns—With Recent Experimental Studies."—Henry N. Harkins, Chicago.

A study of a series of burned patients is presented with the results of various methods of treatment, especially the use of tannic acid. Clinical observations on blood concentration and fluid loss from the weeping burned surfaces and the possible effect of tannic acid in preventing these changes are discussed. A case of curling ulcer is reported in some detail. The relation of fluid loss from burned areas in patients to a somewhat similar loss in experimental animals is analyzed. The pathology of burns including local destructive changes and generalized so-called "toxic" changes is mentioned. A final brief comment is included on the relaxation of early choice of treatment and later skin grafting or plastic repair.

Discussion opened by D. J. Lewis, Springfield.

3:00—"Carcinoma of the Colon."—D. B. Freeman, Moline.

Since there is no specific test or strictly pathognomonic symptoms of carcinoma of the colon, it is necessary to consider those signs and symptoms which present themselves in this condition and then by such methods of examination as are available, make a diagnosis and decide what procedure should be used to eradicate this disease.

Discussion opened by O. E. Nadeau, Chicago.

3:30—"Surgical Treatment of Arthritis."—Philip H. Kreuscher, Chicago.

Every case of acute arthritis should be managed surgically. The removal of foci of infection nearly always demands surgery. Deformities can be prevented in many instances and, when they exist, can be corrected. Tenotomies, capsulotomies, capsulorrhaphies and osteotomies are indicated in some cases. Arthritis of the spine demands immobilization with or without traction and often internal fixation by one of the several fusion methods. Surgery is recommended early in those persistent cases of low back or sacroiliac arthritis, especially in industrial cases. Manipulation of the joints under anesthesia with or without injection of various materials has a definite place in the management of the subacute or well established cases. Synovectomies are indicated especially in monarticular arthritis of larger joints. Arthroplasty is done in suitable cases, especially of the knee and elbow. All the rehabilitation methods at the command of the surgeon must be employed.

Discussion opened by G. W. Staben, Springfield.

THE TREATMENT OF FRACTURES OF THE NECK OF THE FEMUR

4:00—"The Roger Anderson Method."—H. D. Junkin, Paris.



Reference briefly is made to the current literature on hip fracture. The Roger Anderson Well-Leg Splint was used in thirty-eight hip fractures. Fifteen were intracapsular and twenty-three involved the intertrochanteric area. Six deaths occurred in this series. All cases living through the first year after injury recovered with bony union and excellent function. A brief summary of the advantages of the splint is made.

4:20—"The Steel Pin Method."—H. A. Sofield, Chicago.

A presentation of the method and an analysis of the results of using steel pins for fixation of fractures of the femoral neck. A series of more than 40 cases, encompassing a period of 2½ years, submitted. Lantern slides show the method employed and the results obtained. Freedom of movement in the knee joint and ease of changing position of the patient, combined with rigid immobilization of the fracture is stressed.

4:40—"The Whitman Method."—H. E. Cooper, Peoria.

The three factors which Whitman regarded as essential in the reduction and fixation of fractures of the hip will be discussed. If these three factors, that is, hyperextension, internal rotation and abduction, are essential, the question comes up whether the other methods in use of reducing and holding fractures of the hip will bring about the best combination of conditions to be most conducive to a good solid union in fractures of the hip. In my opinion the use of the Whitman's Spica in these fractures offers the best hope of a solid bony union.

5:00—Opening Discussion.—Paul B. Magnuson, Chicago.

5:10—Discussion.—J. B. Oliver, Kewanee.

### *Wednesday Morning, May 20, 1936*

#### COLUMBUS HALL

Joint Session with Sections on Medicine and Public Health and Hygiene.

#### SYMPOSIUM ON AMEBIASIS

8:30—"Contagion and Public Health Aspect of Amebiasis."—Mr. Joel I. Connolly, Chicago.

This paper will give a brief summary of the findings in the outbreak of epidemic amebic dysentery having a focus in two Chicago hotels in 1933.

The reasons for believing that contamination of water through faulty plumbing was the principal cause of the outbreak will be presented, and the specific defects and methods of correction will be given. The lessons resulting from the epidemic, which are generally applicable, will be summarized.

Illustrative material will be used if possible.

8:50—"The Clinical Aspects of Amebiasis."—Samuel E. Munson, Springfield.

1. Blood may or may not be found in the stools, depending on the acute or chronic types.
2. Discomfort and pain in lower abdomen.

3. Poor appetite.

4. Leukocytes increased.

5. Where blood is not observed in the stools, occult blood is found.

6. Slides showing types of organism and effect on the tissues.

9:10—"The Laboratory Diagnosis of Amebiasis."—Bertha Kaplan Spector, Chicago.

9:30—"The Medical Management of Amebiasis."—Arthur E. Mahle, Chicago.

9:50—"Surgical Problems in Amebiasis."—Gatewood, Chicago.

Discussion of the surgical pathology involved in amebiasis.

Disease is primarily medical. Surgery is limited to complications. The following complications are discussed:

1. Liver abscess with
  - a. subphrenic involvement,
  - b. empyema,
  - c. lung involvement.
2. Involvement of cecum and appendix.
3. Neoplasm-like masses of the large bowel.
4. Perforations of the bowel with local or general peritonitis.
5. Affections of the skin
  - a. about enterostomy stomata,
  - b. about the rectum.
6. Cerebral abscess.

The importance of accurate differential diagnosis and the avoidance of surgery in acute amebic dysentery is discussed.

10:10—Opening Discussion (Pathological).—R. H. Jaffe, Chicago.

10:25—Public Health Discussion.—Mr. Clarence W. Klossen, Springfield.

10:30—Medical Discussion.—R. F. Traut, Chicago.

10:35—Closing Discussions.

### *Wednesday Afternoon, May 20, 1936*

#### COMMUNITY HALL

2:30—Renal Tuberculosis in Childhood and Adolescence."—Herman L. Kretchmer, Chicago.

The paper will stress the frequency of renal tuberculosis in childhood and adolescence; the importance of early diagnosis and early treatment; and analysis of a group of adult cases in which the symptoms can be traced back to childhood or adolescence; a critical review of a large series of cases; the importance of determining the cause and origin of pus in the urine. Illustrated by lantern slides.

Discussion opened by Frank N. Evans.

3:00—"A Method of Performing Nephrostomy and Its Valve."—Wilbur W. Holland, Beardstown.

The operation is commonly applied to patients for whom the element of time is important. By this method a catheter can be introduced into the kidney pelvis accurately, with a minimum amount of damage to the parenchyma. It can be introduced without mobilization of the kidney and the danger of bleeding is very slight. It maintains its position in the pelvis and can be readily changed.

### 3:30—"The Injection Treatment of Hernia."

W. W. McMillan, Chicago.

After a historical background of this method is given a report is submitted covering an experience of about three years with the Injection Treatment of Hernia. This includes clinical and experimental data, the latter on experimental animals. An investigation of various solutions is also included, the objective being to use a solution which will produce a healing over of the hernial defect by new fibrous tissue without necrosis, while the hernia is held reduced by a truss. Hazards, contra indications and results with recurrent rate, as compared with surgical care, is reported, with a concluding evaluation of this treatment.

Discussion opened by D. R. Cunningham, Evanston.

### 4:00—"Causes of Failure in the Treatment of Acute Empyema."—J. R. Head, Chicago.

A discussion is presented of the various methods of treating acute empyema and of the causes for immediate failure and for the development of chronic empyema and of the later complications. The points brought up are illustrated by case reports and x-rays. Particular attention is given to the relative indications for open and closed methods.

Discussion opened by R. M. Sutton, Peoria.

### 4:30—"Cirrhosis of the Liver as a Surgical Problem."—Gustav Zechel, Chicago.

A short review of symptoms and complications of the cirrhosis of the liver is given and supported by the study of 77 cases of the Research Hospital, 30 cases of the Ravenswood Hospital and 6 cases of the author. The importance of the misleading character of the initial symptoms is explained under the heading of differential diagnosis. Only the early diagnosis gives a good surgical prognosis. Since the number of cases observed by each author is quite limited, the surgical results of Talma's operation, collected from about 150 authors, are computed and critically discussed. Conclusions from the above obtained material are drawn as directions for the general surgeon.

Discussion opened by Warren Cole, St. Louis, Mo.

### 5:00—"Surgery of the Gallbladder and Bile Ducts."—C. B. Puestow, Chicago.

A series of 200 consecutive operations performed for benign biliary tract disease were analyzed relative to mortality, morbidity and end results. Included in this group were 40 patients in whom the common bile duct was explored and drained. Studies were carried out

on the intraductal pressures of these patients under various conditions and were correlated with other experimental data in an effort to determine why physiologic changes are associated with or follow biliary tract disease and cholecystectomy. A small number of cases of acute cholecystitis were included in this series and their surgical treatment discussed.

Discussion opened by J. C. T. Rogers, Urbana.

## Thursday Morning, May 21, 1936

### COLUMBUS HALL

Joint Session with Sections on Medicine, Eye, Ear, Nose and Throat, Public Health and Hygiene and Radiology. For Program see Section on Medicine.

### SECTION ON EYE, EAR, NOSE AND THROAT

Watson W. Gailey .....Chairman  
John A. Cavanaugh.....Secretary

## Tuesday Morning, May 19, 1936

### LADIES PARLOR

### 11:00—"Notes on Plastic Surgery of the Orbit." (Slides)—M. L. Folk, Chicago.

The most important principles of plastic surgery about the eye and orbit, the pre- and post-operative treatment and the operative technique will be discussed. Cases illustrated by lantern slides and showing cicatricial ectropion, congenital and acquired colobomata, and congenital pigmented nevi of the lids, symblepharon, entropion, exophthalmos, and restoration of shrunken eye sockets, will be presented.

Discussion opened by Frank N. Davenport, Moline; John F. Deal, Springfield; J. S. Clark, Freeport.

### 11:20—"Injuries to the Esophagus."—Chas. D. Sneller, Peoria.

The esophagus is the passageway taken by all foods from the mouth to the stomach. Chemical, thermal and physical injury to this tube may take place from the accidental swallowing of materials, considered as improper foods, or from unskillful instrumentation. This may lead to abrasion, laceration or perforation of the esophagus. The mucosa itself has remarkable resisting and healing powers, but the submucosa and deeper structures are poorly equipped to withstand the onslaught of injury and bacterial invasion. Various factors are concerned in the better understanding and treatment of injuries to this organ.

Discussion opened by Wm. A. McNichols, Dixon; Harold Watkins, Bloomington; Paul Holinger, Chicago.

### 11:40—"Surgical Treatment of Retinal Detachment."—S. J. Meyer, Chicago.

Popularization of the surgical treatment of Retinal Detachment began in 1929 following a paper describing technique and end results in a series of 100 cases by Jules Gonin. Gonin was first to elaborate upon the



use of the Pacquelin cautery to seal up retinal tears. Then followed the use of diathermy for superficial cauterization of the sclera by means of a ball electrode as advocated by Lansen. Guist later published his results with potassium hydroxide cauterization of the choroid through a trephine aperture in the sclera. About the same time Wese began to advocate his method of multiple punctures of the sclera with the long flexible steel needle with 50 to 75 milliamperes of diathermy current. The Safar and Walker methods of diathermy treatment followed shortly thereafter. In October, 1935, Dr. Harry S. Gradle published an article in the American Journal of Ophthalmology, advocating the use of a single, rather firm and moderately curved diathermy needle in place of the thin flexible Wese needle or the cumbersome Walker pins. With this simple, non-flexible needle, any number of punctures can be made, it becomes rarely necessary to sever any recti muscle for adequate exposure, and the entire technique is simplified and shortened."

Discussion opened by Harry W. Woodruff, Joeliet; Chas. V. Voight, Mattoon; A. L. Adams, Jacksonville.

*Tuesday Afternoon, May 19, 1936*

ST. JOHN'S HOSPITAL

2:30—Conference Groups. — Present Your Problems.

Pharynx and Larynx:

Morphology. (Applied surgical anatomy).—problems in diagnosis and treatment. (Slides and specimens).

Francis L. Lederer; L. Z. Fishman; Paul Holinger; N. D. Fabricant; Illinois University.

Ear:

Diagnosis and Treatment of Ear Conditions.

Ellison L. Ross; Howard C. Ballenger; Northwestern University.

Nose:

Anatomy: Diagnosis and Treatment of the Paranasal Sinuses and More Common Nasal Diseases.

D. B. Hayden; L. W. Curry, Richard Watkins; Geo. E. Shambaugh; Frank Wojniak, Rush Medical College.

Eye:

Diagnosis and Treatment of Trachoma.—Hallard Beard, University of Illinois.

Classification of Concomitant Squint with Reference to Treatment.—Geo. Guibor, Northwestern University.

Retinal Detachment as a Surgical

Condition.—Sanford Gifford, Northwestern University.

Obstetrical Ophthalmology. — Dewey Katz, Rush Medical College.

Safety Measures Intra-ocular Surgery. —Wm. F. Moncrieff, Rush Medical College.

*Wednesday Morning, May 20, 1936*

LADIES PARLOR

9:00—"Use of Obturator in Treatment of Chronic Antrum Infections."—G. C. Otrich, Belleville.

In the surgical treatment of chronic infection of the antrum or maxillary sinus, the radical Caldwell Luc or one of its many modifications is supposed to be the last word. Even after these radical antral-nasal operations, we still have with us the patient with the chronic antrum and it is for this type of case that I have used the obturator with most satisfactory results and it is for this reason that I am recommending it.

Discussion opened by O. E. Van Alyea, Chicago; Jesse H. Roth, Kankakee; R. C. Matheny, Galesburg.

9:30—"Treatment of Ophthalmia Neonatorum."—J. Bellows, Chicago.

Eighty-five cases of ophthalmia neonatorum were treated at the Cook County Hospital in the past three years. The routine treatment consists of frequent saline irrigations. Freshly boiled milk, cooled to body temperature is given intramuscularly every other day, in all but the very mild cases. Various antiseptics were tried.

Discussion opened by Harry O. Williams, Centralia; Wm. R. Fringer, Rockford; Jos. F. Duane, Peoria.

10:00—"Practical Points in Hearing Tests and Selection of Hearing Aids."—Robt. Sonnenschein, Chicago.

Functional testing of hearing may be carried out with proper use of the voice, a small number of good forks, and correlation of findings, with the history of the patient and examination of ear, nose and throat. Audiometers are also of great value in many instances, and especially for research purposes.

Discussion opened by H. L. Ford, Champaign; Wm. H. Elmer, Rockford; J. J. Theobald, Oak Park.

10:30—"Treatment of Trachoma in Southern Illinois."—A. F. Lenzen, Peru.

One thousand cases of trachoma were treated. Two main methods of treatment were used and compared. Other methods of treatment will be considered. Five hundred operations were performed. Surgical procedures will be described, and prophylaxis will be considered.

Discussion opened by E. E. Woodside, Marion; Elias Selinger, Chicago; Dwight C. Orcutt, Chicago.

10:45—Chairman's Address. — Watson W. Gailey, Bloomington.

*Wednesday Afternoon, May 20, 1936*

LADIES PARLOR

2:30—"Allergy of the Eye, Ear, Nose and Throat."—Leon Unger, Chicago.

Allergy may strike almost any part of the body. It has special predilection for the nose and eyes; ears are occasionally involved. Discussion of allergic conjunctivitis, rhinitis, hay fever, Meniere's syndrome, angio-neurotic edema. Treatment, specific and non-specific.

Discussion opened by G. S. Duntley, Macomb; A. R. Hollender, Chicago; Lawrence J. Hughes, Elgin.

3:00—"Middle Ear Infections."—C. H. Christoph, Chicago.

After a brief review of the anatomic pathologic relation, the treatment of chronic discharging ears is given consisting mainly of dry treatment, gauze, wicks of Xeroform and instillation of Sulzberger Iodine powder after removal of polypi and granulation in the ear and pathologic condition in the nose and throat.

Discussion opened by Walter Stevenson, Quincy; Harry C. Hill, Streator; Samuel Salinger, Chicago.

3:30—"Physical Therapy as Applied to the Eye, Ear, Nose and Throat."—J. S. Coulter, Chicago.

Physiologic effects of radiant energy (infra-red and ultra-violet radiation) galvanic currents (ionization) and medical diathermy. (long and short wave) Indications for the use of above in eye, ear, nose and throat conditions.

Discussion opened by A. B. Middleton, Pontiac; Maurice H. Cottle, Chicago; Louis L. Steiner, Danville.

4:00—"Practical Consideration of Petrositis with Report of Two Cases."—Jos. C. Beck, and M. R. Guttman, Chicago.

This paper will deal with a brief résumé on the subject of Petrositis and a report of two cases operated upon, illustrating various details in the clinical course, pathology and operative procedures.

Discussion opened by C. F. McClellan, Decatur; Wm. E. Hagens, Chicago; Stuart Broadwell, Springfield.

4:30—"A Comparison of Scopolamine and Atropin Cycloplegia."—Louis Bothman, Chicago.

Two hundred eyes were examined by retinoscopy while under the cycloplegic effect of scopolamine, using a one-half per cent solution of Scopolamine, Hydro-

chloride instilled twice, at one-half hour intervals and the same eyes re-examined while under the influence of fourteen drops of atropine instilled q. i. d.

Discussion opened by R. H. Woods, LaSalle; F. W. Broderick, Sterling; E. C. Spitze, East St. Louis.

5:00—"Chronic Sinus Disease in Children."—J. R. Lindsay, Chicago.

A discussion of practical problems in the management of chronic sinus disease in the child, from the rhinologist's standpoint, based on a review of the cases treated in the University of Chicago clinics during the past eight years.

Discussion opened by Theo. E. Walsh, Chicago; Louis Ostrum, Rock Island; Thomas C. Galloway, Evanston.

*Thursday Morning May 21, 1936*

COLUMBUS HALL

Joint Session with Sections on Medicine, Surgery, Public Health and Hygiene and Radiology. For Program see Section on Medicine.

SECTION ON PUBLIC HEALTH AND HYGIENE

W. M. Talbert .....Chairman  
Archibald Hoyne .....Secretary

*Tuesday Afternoon, May 19, 1936*

GYMNASIUM

2:30—"Treatment of Meningococcic Meningitis with Meningococcus Antitoxin."—Winston Tucker, State Health Department, Springfield.

Since February 1, 1935, fifty-eight cases of meningococcic meningitis have been hospitalized in the St. John's Hospital unit for contagious diseases in Springfield. Of this number, 40 were from the City of Springfield, while the remaining 18 were from nearby communities. In addition to the clinical diagnosis, stained smears of the spinal fluid were prepared in each instance, and the diagnosis corroborated by the finding of meningococci in the smears. The first 16 cases were treated with antimeningococcus serum, but in spite of this treatment nine of the patients succumbed, which is a fatality rate of 56 per cent. During the latter part of March, 1935, meningococcus antitoxin was placed on the market, and this preparation has been used in the treatment of all subsequent cases of meningococcic meningitis in this hospital. Forty-two cases have been treated with this preparation, generally by the intravenous route, the antitoxin being diluted in twice the quantity of 10 per cent glucose solution. Death took



place in 9 of the 42 patients, a fatality rate of 22 per cent. An analysis of this group of cases will be presented, with particular reference to the interval of time which elapsed between the onset of symptoms and the administration of meningococcus antitoxin.

Discussion opened by Thomas D. Masters, Springfield.

3:00—"Occurrence of Vercidal Substances in Patients with Poliomyelitis: Bearing on Serum Treatment and Vaccination."—Paul H. Harmon, and H. N. Harkins, Chicago.

The recent attempts at vaccination against poliomyelitis, together with the irregular appearances of neutralizing substances in the blood after an attack of poliomyelitis have prompted us to extend our original studies concerning the poliocidal substances in human serums, made in 1928 and 1929. At that time, the authors (in collaboration with Drs. H. J. Shaughnessy and F. B. Gordon) found neutralizing substances in a large number of normal persons, both adults and children. Limited observations upon the age incidence suggested the possibility of acquisition of these substances with increasing age. We have titrated recently monkey serums at frequent intervals following experimental poliomyelitis and determined the exact appearance time of the poliocidal substance. We have likewise titrated the serums of humans at all stages during early poliomyelitis and those of the same patients three and four months after the acute attack. We find that clinical poliomyelitis occurs when poliocidal substances are already present in the blood. An almost universal presence of these substances very early in the disease, so early that they could not possibly be due to the current attack, suggest that the poliocidal substances have less to do with resistance and recovery in this disease than was formerly supposed. For example, in our series of fourteen serums, there are patients with little or no poliocidal substance that suffer only a light attack of the disease. It is quite noticeable that no patients with adequate initial amounts of poliocidal substance has had widespread paralysis. The general aspects of poliomyelitis immunity are discussed in relation to artificial immunity (vaccination) and to natural immunity.

Discussion opened by H. J. Shaughnessy, Springfield.

3:30—"A Five Year Review of Anterior Poliomyelitis in the Chicago Area."—Sidney O. Levinson, Chicago.

All preparalytic and early paralytic patients in the Chicago area during the years 1931 to 1935, inclusive, were treated with relatively large doses of convalescent poliomyelitis serum. Although there has been no epidemic during this time, cases have occurred endemically every year during the summer and fall seasons.

In the preparalytic group, a review shows that the

mortality has been very low, and the incidence of paralysis almost negligible. Most of the weaknesses that appeared have been temporary and have cleared up within a short period after the illness. No severe degree of paralysis has supervened in those preparalytic cases who were treated with adequate doses of serum. In the early paralytic group, who were suffering from the active disease and in whom the paralysis seemed to be spreading, the results of serum therapy are difficult to evaluate. In general, the clinical impression has been that most of the patients have shown cessation of illness and some recovery from the paralysis.

Discussion opened by Julius Hess, Chicago.

4:00—"Epidemic Respiratory Diseases in Early Life."—Scott Wilkinson, Decatur.

A clinical study of epidemic respiratory disease in infants and young children for the years 1931 to 1935, inclusive. An analysis of relative frequency as compared to certain common contagious diseases; the involvement of specific age periods; relation to influenza and other epidemics; the clinical features in early life. Comments on the interpretation of these findings from the epidemiological viewpoint.

Discussion opened by J. Howard Beard, Urbana.

4:30—"Cross Infection: Its Prevention in a Children's Hospital."—Maurice L. Blatt, Chicago.

The control of cross-infection is dependent upon

(a) The recognition and exclusion from the institution of contagious diseases in the pre-dromal, early and convalescent stages and when full blown.

(b) The recognition of carriers on admission.

(c) The giving of whole human blood to all new admits.

(d) If contagious case occurs in the institution, its isolation and the immediate immunization of susceptible contacts.

(e) Institution of specific therapy.

Discussion opened by Archibald Hoyne, Chicago.

5:00—"How to Reduce Infant Mortality."—Henry C. Niblack, Board of Health, Chicago.

The principal causes of infant mortality can still be classified into three groups: conditions peculiar to early infancy, respiratory, and gastro-intestinal diseases. The marked lowering of the infant mortality rate in some communities has been due principally to reducing the number of deaths from gastro-intestinal diseases. Future efforts must be directed toward reducing the deaths in the other two groups. A discussion of some of the measures along the above lines that are being carried out in a large metropolitan community.

Discussion opened by John Carey, Joliet.

*Wednesday Morning, May 20, 1936*

COLUMBUS HALL

Joint Session with Sections on Medicine and Surgery.

SYMPOSIUM ON AMEBIASIS

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Illustrative material will be used if possible.

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2. Discomfort and pain in lower abdomen.

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5. Where blood is not observed in the stools, occult blood is found.

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9:50—"Surgical Problems in Amebiasis."—Gatewood, Chicago.

Discussion of the surgical pathology involved in amebiasis.

Disease is primarily medical. Surgery is limited to complications. The following complications are discussed:

1. Liver abscess with
  - a. subphrenic involvement,
  - b. empyema,
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2. Involvement of cecum and appendix.
3. Neoplasm-like masses of the large bowel.
4. Perforations of the bowel with local or general peritonitis.
5. Affections of the skin.
  - a. about enterostomy stomata,
  - b. about the rectum.
6. Cerebral abscess.

The importance of accurate differential diagnosis and the avoidance of surgery in acute amebic dysentery is discussed.

10:10—Opening Discussion (Pathological) — R. H. Jaffe, Chicago.

10:25—Public Health Discussion.—Mr. Clarence W. Klassen, Springfield.

10:30—Medical Discussion.—E. F. Traut, Chicago.

10:35—Closing Discussions.

*Wednesday Afternoon, May 20, 1936*

GYMNASIUM

2:30—"The Incidence and Clinical Significance of the Various Types of the Diphtheria Bacillus Found in Illinois."—Thomas C. Grubb, and H. J. Shaughnessy, Springfield.

In 1931 Anderson and his co-workers in Leeds, England, announced that all strains of the diphtheria bacillus could be divided into three distinct types—gravis, mitis and intermediate—based on their colonial morphology on a chocolate-tellurite agar medium. They stated further that the gravis strains were associated with the more severe, toxic cases of diphtheria, while the mitis strains were usually isolated from the mild cases. In general, Anderson's original findings have been amply confirmed by subsequent studies in England.

In order to determine the incidence of the three types in this state, positive diphtheria cultures coming to the laboratories of the State Department of Public Health during the past six months have been grown on Anderson's chocolate-tellurite agar medium for the purpose of classifying the strains as gravis, mitis, etc. A small percentage of the culture has also been examined for virulence and starch fermentation. The clinical significance of the three types was determined by sending questionnaires to the physicians who had submitted the positive cultures. Information regarding the location of the false membrane, type of the disease, amount of antitoxin injected, response to the antitoxin, etc., was requested in order to ascertain the relative severity of the case. The above data have been tabulated and correlated.

Discussion opened by Perry J. Melnick, Decatur.

3:00—"Public Health Problems of Southern Illinois."—B. E. Montgomery, Harrisburg.

Communicable diseases result in substantially greater proportionate losses in southern Illinois than in either the central or northern sections of the State. Statistical data are presented which show that losses in the southern area from typhoid fever, infantile diarrhea, diphtheria, tuberculosis and whooping cough amount to 450 lives per year more than would be the case if mortality rates were no higher than elsewhere in the State. The excess infant mortality is about 250 deaths annually. The cause of these excess losses is a lack of organized official public health facilities rather than racial characteristics, the quality of medical service or



climate. Supportive evidence on these points is presented. A plan for improving the situation is offered.

Discussion opened by John J. McShane, Springfield.

3:30—"The Etiologic Diagnostic and Medico-legal Problems of Occupational Diseases."—C. O. Sappington, Chicago.

Silicosis has made the general population occupational-disease-conscious, but there are other important occupational diseases deserving of serious consideration.

Etiology has been a most neglected factor. Mere industrial exposure does not constitute a hazard. Industrial conditions must be critically studied and measured before correct diagnosis can be made. This does not mean reliance upon unproved statements in the history of the patient.

Diagnosis involves not only adequate examinations, but also appropriate clinical laboratory and x-ray data, as well as differential opinion. Pre-employment and periodic examinations are real diagnostic problems.

The chief medico-legal issues arise because of deficiency in etiologic information, and consequent errors in diagnosis. The medical profession must extend its influence and basic knowledge in occupational disease work if usefulness is to be continued and preserved.

Discussion opened by Wm. D. McNally, Chicago and Vernon Long, Decatur.

4:10—"Basic Principles in the Treatment of Acute Gonorrhea."—Leon M. Beilin, Chicago.

We are handicapped in our study of pathology and therapy of gonorrheal infection mainly on account of inability to reproduce this disease in lower animals and to develop an active immunity against this infection. Basic principles in the treatment of acute gonorrhea are summed up in the promotion of effective drainage through active diuresis, observation of rigid hygiene, etc. To be effective, the treatment must be continuous and measures taken to counteract the disease must at all times be appropriate for each succeeding stage in the inflammatory reaction of the tissues to the gonococcal invasion. After all, we are merely trying to assist Nature and not setting out to perform miracles with an imposing array of drugs.

Discussion opened by H. J. Burstein, Decatur.

4:40—"Effectiveness of the Oral Administration of Ephedrine in the Common Cold."—G. Howard Gowen and Alexander J. Nedzel, Chicago.

The treatment of acute coryza has been most diverse. To date there are no specific biological or pharmaceutical agents. Diehl's preparation of "papavarine and codeine" seems quite effective, but is too narcotic, and it is not unreasonable to suppose that the chief motive action of this treatment is that the patient does not care whether he has coryza or not, having been rendered less alert to his distress by having been made somewhat "dopey." Considering that most cases of coryza are

fundamentally of an allergic nature, we decided to experiment with an ephedrine preparation which has been successfully employed in some cases of Hay Fever, Asthma and other allergic states. As ephedrine has a tendency to cause psychic excitation, most especially insomnia, it seemed rational to combine it with a sedative such as an isoamylethylbarbituric acid.

Discussion opened by E. F. Pearson, Springfield and Lloyd Arnold, Chicago.

*Thursday Morning, May 21, 1936*

COLUMBUS HALL

Joint Session with Sections on Medicine, Surgery, Eye, Ear, Nose and Throat and Radiology. For Program see Section on Medicine.

#### SECTION ON RADIOLOGY

George M. Landau .....Chairman

Roswell T. Pettit.....Secretary

*Tuesday Afternoon, May 19, 1936*

#### LIBRARY

2:30—"Interpretation of Hilus Shadows in Chest X-rays of Children."—John Bilger, Highland Park.

Structures making up hilar shadows, as check on findings at necropsy with x-rays. Films will be shown demonstrating normal hilus, hilar tuberculosis, pneumonia, Hodgkin's disease and other pathological conditions.

Discussion opened by D. O. N. Lindberg, Decatur and Joseph K. Calvin, Chicago.

3:00—"Renal and Ureteral Anomalies."—Wm. W. Furey, Chicago.

Renal and ureteral anomalies have proven of great interest. Congenital anomalies constitute 40% of all pathologic conditions of the kidney and ureter, hence the necessity of recognizing them as something more than curiosities. Complete urologic and urographic examinations are essential.

Discussion opened by Arthur Sprenger, Peoria and E. L. Jenkinson, Chicago.

3:30—"Radiological Diagnosis and Treatment of Prostatic Lesions."—Perry B. Goodwin, Peoria.

Radiological evidence as produced by film study using an opaque medium and the results obtained from Roentgenotherapy in cases of carcinoma of the prostate.

Discussion opened by H. B. Henkel, Springfield.

4:00—"Irradiation Therapy of Intracranial Neoplasms."—T. J. Wachowski, and Adolf Hartung, Chicago.

This paper reviews the history of irradiation therapy of intracranial neoplasms. The dangers are pointed out and indications for treatment, based on histological and clinical studies, are presented. Fifteen cases of verified brain tumors treated by irradiation are presented.

Discussion opened by Eric Oldberg, Chicago.

4:30—"Intrapelvic Protrusion of the Acetabulum (Otto's Pelvis)."—Lawrence M. Hilt, Springfield.

Report of three cases (one was treated as a fracture for over two months). Approximately seventy cases of Otto's Pelvis have been reported in the literature, although first described by Otto in 1824.

Discussion opened by F. Flinn, Decatur and C. H. Zoller, Litchfield.

5:00—"Neuroblastoma from the Standpoint of the Roentgenologist."—Edwin L. Rypins, Bloomington.

A brief description of the pathology is to be given and three cases of the Hutchinson type are presented, giving characteristic Roentgen ray findings and microscopic sections and one case that was treated with x-ray. The Roentgenologist can make a definite diagnosis, even though the pathologist cannot be sure.

Discussion opened by Cesare Gianturco, Urbana.

### Wednesday Morning, May 20, 1936

#### LIBRARY

8:30—"The Radiologist and the Hospital."—W. M. Hartman, Macomb.

Is Radiology the practice of medicine or glorified hospital technical service? What is hospital service and what is medical service? Radiology, because of recent development, has been subjected to much economic strain. Responsibility of hospital staff. Solution lies with general medical profession.

Discussion opened by Everett Coleman, Canton and Perry Goodwin, Peoria.

9:00—"Chest Roentgenography: New Standards and Improved Techniques."—D. O. N. Lindberg, Decatur.

The criteria of adequacy of chest Roentgenograms necessary to exclude demonstrable lesions is defined. Basic standards of technique to provide satisfactory films are discussed and indications for use of higher milliamperages, high speed Bucky and tubes with rotating anodes are presented.

Discussion opened by Roswell T. Pettit, Ottawa and Willard Van Hazel, Chicago.

9:30—"Roentgen Therapy of Cellulitis."—B. C. Cushway, and Roe J. Maier, Chicago.

Presentation of sixty cases of Cellulitis with discussion of present day conception of biological action of Roentgen radiation in this disease. Description of local and systemic reaction is given. Cooperation in treatment between attending physician and Roentgenologist is emphasized.

Discussion opened by I. S. Trostler and Paul G. Papsdorf, Chicago.

10:00—Report of Cancer Committee of the Illinois State Medical Society.

Bowman C. Crowell, *Chairman*, Chicago.

E. G. C. Williams, Danville.

Milton G. Bohrod, Peoria.

J. P. Simonds, Chicago.

R. H. Jaffe, Chicago.

10:30—"Comparative Value of Various Methods in the Roentgenological Examination of the Colon."—Cesare Gianturco, Urbana.

Various methods used in Roentgenological examination of colon are described and compared as to their value. Special consideration is given to the fluoroscopic examination to the double contrast technique and to the use of semi-transparent media.

Discussion opened by B. Orndoff and Max Hubeny, Chicago.

### Wednesday Afternoon, May 20, 1936

#### KNIGHTS OF COLUMBUS BUILDING

2:30—"The Principles of Radium Therapy."—Frank E. Simpson, Chicago.

Effects of radium rays on living tissues. The selective effects of radium instead of the caustic effects should be used wherever possible. The undesirability of trying to screen off tumors from the surrounding tissues. Surface irradiations contrasted with radium "puncture." Some of the reasons for the use of surface irradiations in preference to radium "puncture." The use of radium in some common diseases, such as carcinoma affecting the skin, mouth, cervix uteri, etc. Other uses of radium.

Discussion opened by Roswell T. Pettit, Ottawa and E. G. C. Williams, Danville.

3:00—"Radiation Therapy and Uterine Cancer."—Louis C. Kress, New York State Institute for Malignant Disease, Buffalo, New York.

Uterine Malignancy has been treated by all forms of radium and x-ray therapy—interstitial, intracavity, and external with radon seeds, radium tubes, packs and high voltage x-ray. Advantages of 4½ gram radium pack will be discussed. Advantages of high voltage x-ray will be presented. Slides showing effects of radiation upon cancer will be shown. End results and complications will be presented.

Discussion opened by Robert A. Arens and Herbert Schmitz, Chicago.

4:00—"Repercussion Therapy."—E. G. C. Williams, Danville.

A report of the study and research into the use of repercussion or secondary radiation increased by injections of solutions and colloidal suspensions into tumor masses during x-radiation describing materials and methods used.



Discussion opened by Prof. Geo. L. Clark, Urbana and Roy Keggereis, Chicago.

4:30—"Use of Radium in Post-Operative Parotitis."—Fred Decker, Peoria.

X-ray and radium therapy have been used in treatment of inflammatory conditions for many years. The use of radium in the treatment of post-operative parotitis is not so commonly known. A brief résumé of the literature and case reports will be given.

Discussion opened by B. C. Cushway and Roe J. Maier, Chicago.

*Thursday Morning, May 21, 1936*

COLUMBUS HALL

Joint Session with Sections on Medicine, Surgery, Eye, Ear, Nose and Throat and Public Health and Hygiene. For Program see Section on Medicine.

#### RULES GOVERNING PRESENTATION OF PAPERS

"All papers read by members shall be limited to twenty minutes, and remarks in discussion to five minutes, floor privilege being allowed only once for the discussion of any one subject.

"All papers read before the Society or any of its Sections shall become the property of the Society. Each paper shall be deposited with the Secretary of the Section when read, and the presentation of a paper to the Illinois State Medical Society shall be considered tantamount to the assurance on the part of the writer that such paper has not already appeared and will not appear in medical print before it has been published in the ILLINOIS MEDICAL JOURNAL.

"A paper not heard in its scheduled turn shall be held subject to the call of the Chairman of the Section at the end of the regular session if time permits, or as an alternative at the end of the program.

"All subjects shall be confined strictly to the subject in hand.

"No paper shall appear in the printed transactions of the meeting unless read in full or in abstract."  
(From the By-Laws of Illinois State Medical Society.)

#### TECHNICAL EXHIBITORS AT 1936 ANNUAL MEETING

A. S. Aloe Company, St. Louis, Missouri.  
Bard-Parker Company, Inc., Danbury, Connecticut.  
R. B. Davis Sales Company, Hoboken, New Jersey.  
DePuy Manufacturing Company, Warsaw, Indiana.  
C. B. Fleet Company, Lynchburg, Va.  
Gerber Products Company, Fremont, Michigan.  
Hamilton-Schmidt Surgical Co., St. Louis, Mo.  
H. J. Heinz Company, Pittsburgh, Pennsylvania.  
Horlick's Malted Milk Corporation, Racine, Wisconsin.  
Kellogg Company, Battle Creek, Michigan.  
J. B. Lippincott Company, Philadelphia, Pennsylvania.  
Libby, McNeill & Libby, Chicago, Illinois.  
Lea & Febiger, Philadelphia, Pennsylvania.

Lepel High Frequency Laboratories, New York, New York.

V. Mueller & Company, Chicago, Illinois.

The C. V. Mosby Company, St. Louis, Missouri.

Mellin's Food Company, Boston, Massachusetts.

McIntosh Electrical Corporation, Chicago, Illinois.

The Medical Protective Company, Wheaton, Illinois.

M. & R. Dietetic Laboratories, Inc., Columbus, Ohio.

Middlewest Instrument Company, Chicago, Illinois.

Mead Johnson & Company, Evansville, Indiana.

Philip Morris & Co., Ltd., Inc., New York, New York.

Standard X-Ray Company, Chicago, Illinois.

Sutliff & Case Co., Inc., Peoria, Illinois.

W. B. Saunders Company, Philadelphia, Pennsylvania.

Universal Products Corporation, Pottstown, Pennsylvania.

White-Haines Optical Company, Columbus, Ohio.

#### NOTES ON EXHIBITS

The Universal Products Corporation will be represented by an exhibit of Surgeons' X-L-Lyte, a compact and serviceable diagnostic set, and not expensive. The set contains: ear speculum, tonsil pillar retractor, tongue depressor, magnifying lens, and nasal speculum, with direct illumination for all. Nickel silver curette, probe, ear spoon and applicator are included in the set. The entire set is contained in a neat and serviceable leather case which is equipped with a hookless fastener.

The A. S. Aloe Company, in Booth No. 1, will show a complete general line of instruments and equipment, offering everything for the doctor and hospital. A line of rustless steel instruments will be offered at a special discount. In addition will be shown the new Aloe Short Wave Diatherm and the new style Elliott machine. The Aloe Company's Illinois representatives, Mr. Kruse and Mr. Drennan, will be in attendance to serve in any way possible.

Look up these unusual new books at the J. B. Lippincott's exhibit: Pfaundler and Schlossmann, "Diseases of Children"; Peham and Amreich, "Operative Gynecology"; Kirschner and Ravdin, "Operative Surgery"; McBride, "Disability Evaluation"; Herrmann, "Passive Vascular Exercises"; Barker, "Treatment of the Commoner Diseases"; Emerson, "The Nervous Patient"; Barborka, "Treatment by Diet"; Goldthwait, "Body Mechanics"; Sr. Gabriel's "Through the Patient's Eyes"; Moore, "Principles of Ethics."

And the new editions just issued of these well-known texts and reference books: Eisendrath and Rolnick, "Urology"; Anspach, "Gynecology"; Davis and Muller, "Applied Anatomy"; Thorek, "Surgical Errors and Safeguards"; Rehberger, "Quick Reference Book of Medicine and Surgery"; "International Clinics," and "Annals of Surgery."

All these books are unusually and beautifully illustrated, with the exception of Barker, and must be seen to be appreciated. You will be welcome at Booth No. 2 and will not be importuned to buy.

The most exacting requirements of adequate liability protection are those of the professional liability field. Representatives thoroughly trained in professional liability underwriting invite you to confer with them at Booth No. 4. These are the representatives of The Medical Protective Company, specialists in providing protection for professional men.

When you are visiting the commercial exhibits, spend some of your time at Booth No. 5 to have demonstrated some of the outstanding features of the new "Jones Motor Basal" made by the Middlewest Instrument Company, Chicago, Illinois. You will be interested in the waterless, noiseless, no calculation of this lifetime-guaranteed instrument.

The DePuy Manufacturing Company will exhibit in Booth No. 8 at the Illinois State Medical Meeting in Springfield the DePuy Reducing Frame for double fractures of the lower leg, the adjustable Hyperextension Frame for applying plaster jackets, the double duty Bone Drill which will handle Kirschner Wire and Steinman Pins, various types of Kirschner Bows to meet the needs of the individual or industrial surgeon or the surgeon who does referred work, the Rocking Leg Splint for each bed pan service and treatment of fractures of the femur, gunshot wounds of the lower leg.

At Booth No. 9 Lea & Febiger exhibit, under the supervision of Mr. L. E. Drury, a number of important new works, as well as new editions of other standard medical books. Among the new works are: Hawes and Stone, "Pulmonary Tuberculosis"; DeRivas, "Parasitology and Tropical Medicine"; Berglund and Medes, "The Kidney"; Graham, Singer and Ballon, "Surgical Diseases of the Chest." New editions are also shown of Bridges' "Dietetics"; Kovac's "Electrotherapy and Light Therapy"; Jelliffe and White, "Diseases of the Nervous System"; Pemberton, "Arthritis"; Speed, "Fractures and Dislocations"; Boyd, "Pathology of Internal Diseases"; Knowles' "Dermatology"; Stimson, "The Common Contagious Diseases," and Haden's "Dental Infection and Systemic Disease."

The Philip Morris & Co., Ltd., Inc., in Booth No. 10 will demonstrate the method by which it was found that Philip Morris cigarettes, in which diethylene glycol is used as the hygroscopic agent, are less irritating than ordinary cigarettes in which glycerine is employed.

Gerber's Strained Foods will be on display at Booth No. 11. There are illustrations and charts descriptive of the new Shaker Cooker process and samples open for inspection.

Booklets and leaflets are available, also scientific reprints. Some of the booklets are suitable for distribution by physicians, and we welcome inspection before ordering supplies.

A feature of the Mead Johnson exhibit in Booth No.

12 will be a display of the Percomorph group of products; namely, Meads Oleum Percomorphum, 50%, in liquid and in capsule form, and Mead's Cod Liver Oil Fortified with Percomorph Liver Oil.

The selection of Mellin's Food as a milk modifier enables the physician to have at hand an effective means for making diet adjustment to meet the needs of the individual infant and without sacrificing nutritional requirements. You are urged to call at Booth No. 13 to discuss your feeding problems.

V. Mueller and Company will present an interesting exhibit of the latest surgical instruments and equipment for the Surgeon, Specialist, and General Practitioner at Booth No. 14, featuring:

New Sightscope for magnified vision, with illumination attachment.

The Elliott Treatment Regulator for applying heat therapy for acute or chronic inflammatory conditions in the female pelvis and the male pelvis.

Masson's Fascia Stripper.

Thomas Oxinjector—a new apparatus for the administration of oxygen or other gases by the injection method: subcutaneous, intravenous, intraperitoneal, or rectal.

New Model Focal-Lite—an all purpose headlight. Projects a clear beam of light for illuminating cavities.

Smith-Petersen-Johansson Flanged Nail, with an improved mallet, as used by Dr. M. S. Henderson of Rochester, Minnesota.

The most outstanding recent development in the science of infant feeding—Libby's Homogenized Foods. This new process mechanically ruptures the food cells of vegetables, fruits, and cereals, refines the cellulose tissue, releases the contained nutriment, and makes these foods more easy to digest and more completely assimilated. Photomicrographs of strained and homogenized foods graphically illustrate the advantages of the newer process. The Research Laboratories of Libby, McNeill & Libby invite you to inspect their display in Booth No. 15.

Quality physical therapy products of McIntosh Electrical Corporation, 223-233 North California Avenue, Chicago, will be on exhibit in Booth No. 16. The meeting will be in charge of the Sales Manager, Mr. R. Herbert Hogan. Mr. Hogan will be assisted by two Illinois state representatives, Mr. E. N. Swinford and Mr. J. W. Maselter. The Hogan Brevat'erm Short-Wave Diathermy Unit will be featured. The Brevat'erm has proven itself to be one of the outstanding short-wave units on the market, and acceptance by the Council on Physical Therapy of the A. M. A. gives assurance of its safety and operating efficiency in actual clinical work. Other McIntosh equipment on exhibition include the new No. 1510 Modernistic Sinustat, the No. 8624 Standard Diathermy, and one of the best dollar value units in infra-red therapy, the No. 3610 Biolite.

This publishing house of Philadelphia and London, W. B. Saunders Company, will exhibit a complete line



of all their titles in Booth No. 17. Among them will be many new books and editions, including Christopher's brand new Textbook of Surgery, the new Mayo Clinic Volume, Berens' work on the Eye and Its Diseases, Levine's Clinical Heart Diseases, Diseases of the Respiratory Tract (Fortnight Lectures of the New York Academy of Medicine), Wolf's Endocrinology in Practice, Rehfuess and Nelson's Medical Treatment of Gallbladder Disease, Eusterman and Balfour's Diseases of the Stomach and Duodenum, Hinman's Urology, The Improved Medical Clinics of North America and the Surgical Clinics of North America, and many others. In addition, of course, there will be such standard works as Curtis' Obstetrics and Gynecology, Bickham's Operative Surgery, Beckman's Treatment, Kitchens' Diagnosis, Todd and Sanford's Laboratory Diagnosis.

You are invited to visit Booth No. 18. Not only will you be cordially welcomed, but you will be served delicious Cocomalt—hot or cold—as you choose. Come early—come often.

Cocomalt has a rich content of Iron, Calcium, Phosphorus and Vitamin D. It is an outstanding high quality food product scientifically formulated.

In Booth No. 20, Sutliff & Case Company, Inc., will display only one item at the Illinois State Medical Meeting at Springfield. This item, of course, is A-Vitam-Ung.

The Horlick's Malted Milk Corporation in Booth No. 21 will exhibit Horlick's the Original Malted Milk, both in natural and in chocolate flavors, powder and tablet forms.

Among the special uses of Horlick's Malted Milk which will be featured are its advantages in the liquid diet, notably in cases of tuberculosis and other wasting diseases, during and after pneumonia, in gastric and duodenal ulcers and acidosis. Horlick's has also been proven by its results, for over fifty years, as a dependable food in infant feeding, even in difficult cases.

Among the Bard-Parker products to be exhibited at Booth No. 22 will be the new Rib-Back surgical blade, incorporating new standards of sharpness, rigidity and strength. Also will be shown a complete line of stainless steel scissors with renewable edges, which require no resharpening, and a very complete demonstration of Rustproof Sterilization for surgical instruments.

H. J. Heinz Company, Pittsburgh, Pennsylvania, invites you to visit their display in Booth No. 23 of Tomato Juice, Breakfast Cereals and Strained Foods, especially prepared for infant and convalescent feeding.

Register for the second edition of their Nutritional Charts. This revised edition, published in December, 1935, contains, along with the vitamin, mineral and food composition charts, new sections on daily requirements and food allergy.

The exhibit of The White-Haines Optical Company, distributors of Blue Ribbon Ophthalmic Supplies, with

general offices located at Columbus, Ohio, will feature the latest developments of Optical Science. White-Haines have a Springfield office located at 524 East Capitol Avenue.

Included in the exhibit (Booth No. 24) will be a demonstration of Loxit, a screwless construction type of rimless glasses. Lenses to be featured are the Panoptik Bifocal (including the improved cataract lens) and the Orthogon Soft-Lite lens that provides glare protection with wide vision correction. A particularly interesting section of the exhibit will be the display of Bausch & Lomb instruments, including the Clason Visual Acuity Meter, the Binocular Ophthalmoscope, the Slit Lamp, also the instrument that aroused so much interest throughout the country—the Wottring Rotoscope that simplifies the whole procedure of Orthoptic Training. The Rotoscope, first shown at the Academy meeting last year in Cincinnati, is now being used all over the country by Ophthalmologists, hospitals and clinics.

The White-Haines exhibit will be in charge of E. F. Wildermuth, general sales manager from Columbus, Ohio. Joe Kihn, manager of White-Haines of Springfield, and Donald Hunter, salesman. Be sure to visit Booth No. 24 if you are doing eye work.

The C. V. Mosby Company will exhibit its complete line of medical publications. Among the newer items to be displayed for the first time will be the following:

Taussig, "Abortion—Spontaneous and Induced."

Bray, "Clinical Laboratory Methods."

Dodge, "Medical Mycology."

Shelling, "The Parathyroid in Health and Disease."

Sherwood, "Immunology."

Murray, "Examination of the Patient."

Hansel, "Allergy of the Nose and Paranasal Sinuses."

Many other new books and new editions will also be available for visitors attending the convention to examine them. A cordial invitation will be extended to all guests at this meeting to visit the Mosby booth No. 28.

The Lepel High Frequency Laboratories, Inc., New York City, will display their mobile and portable short and ultra-short wave machines, and also the Lepel quartz-mercury Ultra-violet Lamp.

These products have been accepted by the A. M. A. and have received the endorsement of leading physicians everywhere. Don't fail to see the Lepel exhibit at Booth No. 30.

Doctors are invited to visit the Kellogg Booth No. 53 for a cup of refreshing Kaffee Hag Coffee. Bottle exhibits showing the stages in decaffeinating coffee are displayed and complete explanation of process is given. Reprints of articles in the *Journal of Pharmacology and Experimental Therapeutics* on the Effects of Caffeine, based on reports of research at the University of Michigan, are available.

Kellogg's All-Bran carries the Seal of Approval of the American Medical Association. Reprints of reports covering research on bran at Columbia University will

be distributed at the booth. The exhibit is in charge of Mrs. Winifred B. Loggans from the Home Economics Department.

The Hamilton-Schmidt Surgical Company of St. Louis will occupy exhibit Booth No. 25. They will show an interesting variety of new surgical instruments, also some Physio-Therapy equipment. A new Short-Wave unit will be demonstrated. A visit to their exhibit is highly recommended.

The Standard X-Ray Company will exhibit in Booth No. 27 the new Standard Shockproof Vertical Fluoroscope with Ortho-Diagraphic attachment, and also the new Standard Model "DV" 100 MA Valve Rectified X-Ray Generator. These two items should be of interest to all Doctors now using, or planning on using x-ray equipment.

At Booth No. 26 will be Phospho-Soda (Fleet), by C. B. Fleet Company, Lynchburg, Va. Phospho-Soda (Fleet) is a highly improved solution of the sodium phosphates, being stable and proportionately buffered to maintain normal metabolism. In addition, it produces the other well known therapeutic actions of sodium phosphate; it is a quick and non-irritating laxative and is credited with promoting the discharge of bile from the gall-bladder and biliary ducts.

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## Springfield Points of Interest



Left: Lincoln's tomb in Oak Ridge Cemetery.

Below: Main hall, State Museum, Illinois Centennial Building.



Illinois Centennial Building



Left: Sail boat on Lake Springfield.

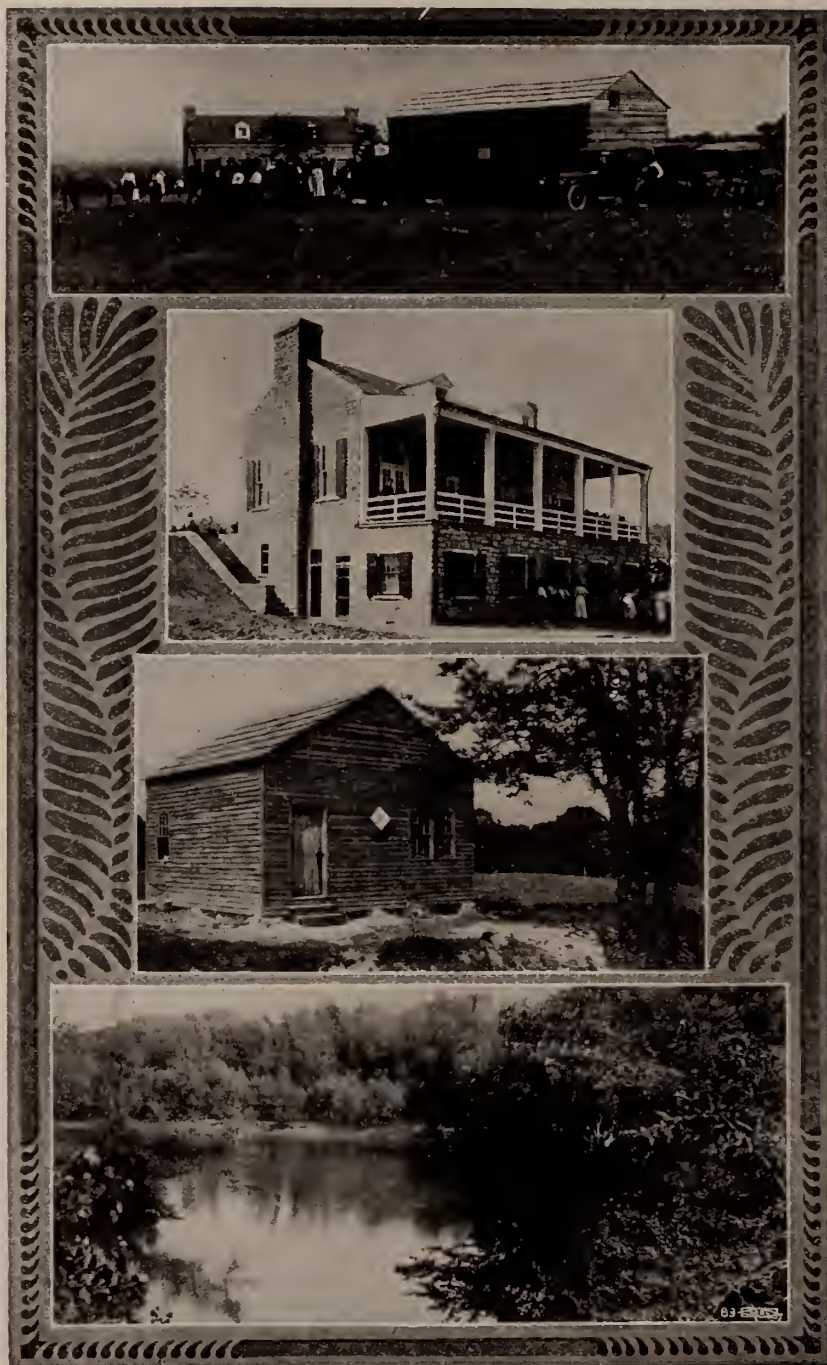
Below: Spillway Spaulding dam, Lake Springfield.



Right: Vachel Lindsay Memorial Bridge, Lake Springfield.







Views of Old Salem: Rutledge Inn at Top; Custodian's Residence and Museum; Restored Lincoln and Berry Store; View of Sangamon River from New Salem Hill.

## Original Articles

### WHAT CAN BE DONE FOR SINUS TROUBLE

GEORGE E. SHAMBAUGH, JR., M. D.

CHICAGO

What can be done for sinus trouble? The average person would be apt to answer this question in two sentences: Sinus trouble cannot be cured and sinus operations, once started, are often a vicious circle, one operation leading to another, finally leaving the patient worse off than ever. Nor are these ideas entirely confined to the layman. A good many physicians are skeptical of the results of the treatment of chronic sinusitis and are wary of operations on the nose and sinuses. The reasons for this distrust of sinus treatments and sinus surgery are not far to seek, as we shall see.

The successful treatment of sinus infections is based on certain fundamental, physiological, anatomical and pathological considerations which we must first understand. Knowing these fundamental facts the treatment of sinus infection is not very complicated and the results are not so bad if the proper treatment is persisted in.

The nose has two physiological functions, olfaction and respiration. In the bloodhound the nose is constructed mainly for olfaction but in man the sense of smell is rudimentary and the respiratory function is much more important. The chief function of our noses is to moisten, warm and clean the air that we breathe so that the pharynx, trachea and bronchi will not become dried out, crusted and clogged with dust. The nose is our *air conditioner*. Its function is particularly important in the cold, dusty air of our northern cities and any disturbance of function is, therefore, much more evident in this climate than in the balmy, humid atmosphere of Florida.

The inspired air first passes through the coarse, stiff hairs of the anterior nares which sift out insects and the larger particles of dust. The nasal cavity, instead of being just a hole for the air to pass through which would not make a very efficient air conditioner, is an irregular narrow chink due to fleshy structures called turbinates

which hang down from the sides of the nose and nearly fill the nasal cavity. There are three turbinates on each side of the nose and since the nasal cavity is roughly triangular, divided by the septum in the midline, the superior turbinate is very small, the middle turbinate is medium in size, and the inferior turbinate is the largest. Except for a small area at the very top of the nose devoted to olfaction, the nasal cavity is lined throughout by a special kind of epithelium called the respiratory epithelium. This respiratory epithelium consists of a single layer of ciliated, columnar cells with here and there a bulging goblet cell which is discharging mucus onto the surface. The cilia are in constant motion throughout life and even for several hours after death. A fragment of mucosa removed from the nose and examined in a drop of normal saline solution under the microscope shows the cilia to be waving steadily and producing a strong current on the surface, red blood cells and any other particles being rapidly swept along. Beneath the ciliated epithelium is a rich vascular network and numerous mucous glands, particularly over the anterior tips of the turbinates where the drying, cooling effect of the inspired air is greatest. The mucous glands and the goblet cells keep the nasal mucosa bathed at all times in a thin film of clear mucus. The cilia keep this film moving in a constant stream to the nasopharynx whence it flows down the throat and into the stomach. In the normal nose there is nowhere an air space wider than 1 or 2 mm., the turbinates adjusting themselves very accurately to any moderate irregularities in the nasal septum. There is thus provided a large, moist, warm surface exposed to the inspired air so that by the time this air reaches the throat it is warmed, thoroughly humidified and most of its dust has adhered to the constantly renewed film of clear mucus. Nature has given us a very efficient air conditioner and any surgical measure which impairs this function will inevitably lead to trouble whereas surgery which is designed to restore the normal anatomy and physiology of the nose will be successful. It has been the lack of appreciation of this important air conditioning function of the nose which has resulted in so much misdirected nasal surgery with poor results.

In the climate of our northern cities this delicately adjusted air conditioner often gets out of



order. First, our noses must endeavor to moisten the dry, hot air of overheated houses and a moment later they must try to thoroughly warm and clean the icy, sooty air of outdoors. In addition, we often catch cold partly as a result of our perpetually overheated houses and every head cold is an added burden to an already overworked nasal mucosa. As a result, we see many noses in this climate which fail to function perfectly, this failure taking one of three forms. The most common nasal ailment is failure to moisten the inspired air completely due to an underactive nasal mucosa. The air spaces are too wide and the mucous glands are not sufficiently active. This is atrophic rhinitis, a very common condition in its mild form and the most frequent cause for nasal symptoms that we see. The insufficiently moistened air causes the mucus in the back of the nose and roof of the nasopharynx to become partially inspissated and thickened. This thick mucus collects at the top of the posterior wall of the pharynx where the cilia leave off and the stratified squamous epithelium of the mouth and pharynx begins. Being too thick to flow by gravity as it should, it must, perforce, be snuffed and hawked out at intervals. In the extreme form of atrophic rhinitis the whole inside of the nose may become dry and covered with crusts.

The treatment for atrophic rhinitis is as simple as it is effective and consists of washing out the nose with normal saline once or twice a day. This cleans away any accumulation of thick mucus or crusts and stimulates the mucosa so that after a few months the nasal cavity may return entirely to normal and the treatment may be discontinued.

A less common nasal disturbance is the exact reverse of atrophic rhinitis, and is due to overactivity of the nasal mucosa. This condition is accurately termed hyperesthetic rhinitis. The normal nose responds to the stimulus of pepper or of very cold air by an increased flow of mucus and perhaps some sneezing. In hyperesthetic rhinitis the slightest stimulus such as an almost imperceptible draft, a little dust or some substance in the environment or in the diet to which the individual is sensitized results in attacks of sneezing, watery discharge and nasal obstruction.

The treatment of this condition is more difficult. If a specific allergen can be discovered and

eliminated the symptoms clear up. Often the individual is sensitive to many things including cold air and then we try to desensitize the mucosa directly by the judicious application of cautery or chemicals which cause a superficial desquamation of the epithelium, the regenerated epithelium being less sensitive. This type of chronic rhinitis leads to a special type of polypoid sinusitis which cannot be cured until the hyperesthetic rhinitis is cured. A considerable proportion of unsuccessful nasal and sinus operations are on this type of case.

The third type of chronic rhinitis, very prevalent in this climate, is the result of a head cold that has not cleared up. The infection in the nose lingers for weeks or months after the cold should have run its course, the mucous glands continuing to secrete excessive amounts of mucus mixed with more or less pus while the mucosa remains congested and swollen interfering with adequate drainage and respiration. This type of chronic rhinitis, chronic infectious rhinitis, is kept going by the irritating effect of the cold, smoky air of our cities and usually clears up promptly on the coming of summer or on going South if the patient can afford this. Most patients cannot afford this, but local treatments are usually quite effective in clearing up the infection and restoring the normal function of the nose.

I have mentioned these three forms of chronic rhinitis, atrophic, hyperesthetic and infectious, because most of these patients believe that they have sinus trouble and too many of them have had treatments or even operations for sinus trouble that is not present. They are not improved and, of course, tell their friends that sinus operations do more harm than good. The bad reputation that sinus treatment enjoys is due in good part to patients who never had sinus trouble. As long as physicians undertake to diagnose and treat nasal and sinus conditions without an understanding of the function of the nose and without ability to accurately diagnose nasal and sinus conditions, sinuses will continue to be treated or operated on when the nose is at fault, and the nose will be treated in vain when the trouble is confined to the sinuses. The most important cause for failure in the treatment of sinusitis is failure to make the correct diagnosis.

The nasal accessory sinuses develop as diverti-

cula from the nasal cavity. At birth the maxillary sinus is already present as a small, wide-mouthed pouch growing into the maxilla from beneath the middle turbinate. The mucous membrane in the sinuses is the same as in the nose but is thinner, less vascular and with fewer mucous glands since there is no circulation of air requiring warming and moistening. The ciliary current in the sinuses is directed out the ostium into the nose. The ethmoid cells are also present at birth as small pockets growing up into the ethmoid bone from beneath the middle and superior turbinates. The sphenoid sinus, at birth, is only a shallow dimple in the front wall of the sphenoid bone at the back of the nose, while the frontal sinus does not develop until mid-childhood when an ethmoid cell begins to grow up into the frontal bone.

Since the antra and ethmoids are the only sinuses present in infancy and since they are but shallow, wide-mouthed pockets extending out from the nasal cavity, sinus infection at this age is always a part of nasal infections. Every attack of acute rhinitis is accompanied by an increased secretion of mucus and pus from the sinuses as well as the nose but since the sinuses drain freely they clear up as quickly as the nose. No special treatment is needed for this rhinosinusitis of infancy except to keep the nose clean and open in the more severe cases by ephedrine drops and suction. The one common complication of this acute sinusitis of infancy that accompanies every head cold is orbital cellulitis, the result of infection from the ethmoid penetrating the very thin lamina papyracea into the orbit. The symptoms are redness and swelling of the eyelids with proptosis of the eyeball. The treatment is conservative, shrinking nasal drops being used to keep the nasal passages open. Occasionally the orbital cellulitis does not clear up and an abscess forms between the periosteum and the lamina papyracea. This abscess must be drained by an external incision.

As the child becomes older and the sinuses become larger with relatively smaller ostia, sinus infections begin to run a course more independent of the nose and require special treatment. In the adult as in the child, the sinus mucosa is probably infected to some degree with every severe head cold, but the normal ciliary activity keeps the cavity swept clean of any increased mucus and pus secretion. This is not ordinarily

called an acute sinusitis since it causes no special symptoms and clears up as the rhinitis subsides. It is only when the inflammatory thickening of the sinus mucosa blocks up the ostium so that the sinus fills with mucus and pus and special symptoms arise that we say the patient has an acute sinusitis.

Acute sinusitis is a self-limited disease which runs a definite and characteristic course and usually clears up if left alone. It begins following a head cold or other upper respiratory infection with pain and tenderness due to the pressure of the accumulated secretion on the inflamed mucosa. Unless the obstruction is complete, nasal and post-nasal mucopurulent discharge from that side of the nose are present as the excess secretion is forced out of the swollen ostium. The pain and headache subside as the ostium opens and the pressure diminishes, and in another week or two the discharge clears up. The diagnosis of acute sinusitis is not difficult since it practically always follows an acute upper respiratory infection. Exceptions are sinus infections from swimming and infection of the maxillary sinus from an abscessed molar or pre-molar tooth which has ruptured through the floor of the antrum.

The treatment of acute sinusitis consists of improving drainage by shrinking the mucosa around the ostium. We use 10% neosilvol in 1% ephedrine aqueous solution, two drops with a medicine dropper into each nostril with the patient lying on his back with the head thrown back so that the solution will run into the upper half of the nasal cavity under the middle and superior turbinate where the sinus ostia are located. This is repeated two or three times daily or oftener in severe infections. Neosilvol and argyrol should be prescribed only in small amounts and the prescription should be labelled "not to be refilled" because of the danger of argyrosis, the deposit of metallic silver in the tissues which may result in a stubborn atrophic rhinitis or in a permanent, gray color to the skin of the face. We are seeing increasing numbers of cases of argyrosis, usually the result of prolonged self-medication. Adrenalin should be avoided because of the irritation and reaction it often causes with increased inflammatory swelling of the nasal mucosa. If the pain of acute sinusitis is severe, rest in bed and heat or ice locally, whichever is more comforting, is indicated. The



patient's room should be kept warm day and night and the air humidified by keeping a steam kettle going supplemented by steam inhalations. By assisting the nose in this way in its task of air conditioning, the infection subsides more quickly and the nasal irritation and congestion are relieved.

After the first week or two of an acute maxillary sinus infection, drainage may be facilitated and recovery hastened by irrigation. This is best carried out through the natural ostium using a special curved cannula which can be easily and comparatively painlessly inserted in most cases. Occasionally it is necessary to puncture through the bony wall with a straight needle. Drainage from the ethmoid and sphenoid sinus can be facilitated after the first week or two by a special technic developed recently by Proetz of St. Louis. The patient lies on his back with the head hanging over the end of the table, resting on a stool, so that the chin and external auditory canal form a vertical line. A solution of normal saline containing  $\frac{1}{4}\%$  to  $\frac{1}{2}\%$  of ephedrine is now introduced into the nose, filling the upper half. Suction is applied to the anterior nares while the patient says "K" to close the palate. This sucks a small amount of secretion from the sinuses. When the suction is released, ephedrine solution enters the sinus replacing the pus. This is repeated 20 to 30 times by which time a large amount of mucus will have been evacuated with considerable subjective relief and apparent shortening of the duration of the infection. This method of draining the ethmoid is called, by Proetz, the displacement technic.

The prognosis of acute sinusitis is usually good. A rare case of frontal sinus infection where severe pain persists for more than two weeks and where shrinking solutions do not effect drainage, may require a simple intranasal operation to open the nasofrontal duct. Surgery is otherwise not indicated in acute sinusitis unless a perforation into the orbit or intracranially has occurred, and these complications are rare.

A small number of cases of acute sinusitis, however, fail to clear up spontaneously and become chronic if untreated. We come now to a consideration of chronic sinusitis.

Acute sinusitis may be defined as an acute, self-limited disease which tends to clear up in a matter of days or a few weeks if left alone. Chronic sinusitis similarly may be defined as a

chronic infection which does not clear up spontaneously but which tends to continue indefinitely. Except for an abscessed tooth which may be the cause of chronic maxillary sinusitis, chronic sinus infection is usually the result of an acute sinusitis that did not clear up and was neglected. Chronic sinusitis is largely preventable by proper attention to all cases of acute sinus infection.

What is there about chronic sinusitis that prevents spontaneous recovery? To what is the chronicity due? Let us see what pathology is found in chronic sinusitis. In acute sinusitis the subepithelial connective tissue is hyperemic, edematous and infiltrated with large numbers of lymphocytes and moderate numbers of polymorphonuclear leucocytes. In a fresh bit of tissue under the microscope these polymorphs may be seen migrating toward the surface by pseudopod formation, finally escaping through tiny canaliculi through the basement membrane to emerge on the surface and add to the pus in the sinus. The epithelium usually remains intact except in very severe infections when areas of necrosis occasionally occur. In chronic sinusitis there is also increased vascularity and edema of the subepithelial connective tissue but, in addition, there is an actual increase in the thickness of this connective tissue the increase being somewhat irregular so that the mucous membrane is nodular or even polypoid. The cellular infiltration consists chiefly of lymphocytes and plasma cells with a few polymorphonuclear leucocytes on their way to the surface. The ciliated epithelium in several hundred cases of chronic purulent sinusitis was always intact and in 20 consecutive cases of long standing purulent maxillary sinusitis where a bit of fresh mucosa was examined in a drop of normal saline under the microscope, the cilia were normally active in every instance. Necrosis of the mucous membrane or destruction of the ciliated epithelium is practically not seen in chronic sinusitis. Then why are these cilia not able to sweep the sinus free of pus and allow the mucous membrane to recover from the infection? First, the accumulated secretions may be so thick and gelatinous that the sinus is mechanically unable to empty itself. Similarly, a badly deflected septum sometimes blocks a sinus ostium sufficiently to prevent satisfactory drainage. Second, the infection in many cases of chronic sinusitis

appears to be anaerobic, the pus is thin and flows out into the nose without difficulty but until free ventilation is established pus will continue to be formed in the sinus. Third, the mucous membrane lining the sinus may become so thickened and infected that it will continue to secrete mucopus for a long time, even after free drainage and free ventilation have been established. When we come to treatment we shall see that it must be adapted according to which factors are at work preventing recovery.

The most difficult problem in chronic sinusitis is diagnosis and this is the stumbling block responsible for most of the failures. The symptoms are not of great assistance except to suggest the possibility of chronic sinus infection and there may be no symptoms at all, the antrum, for example, remaining filled with pus for years, any occasional drainage into the nose being carried down the throat without the patient's being aware of anything unusual. Again, systemic symptoms such as arthritis, neuritis or chronic fatigue are sometimes the only symptoms produced by a chronic purulent sinusitis, the infection being detected only by routine examination of the sinuses. These silent sinuses are more frequent than most people realize.

The most common symptom of chronic sinusitis is postnasal discharge which is usually mucopurulent. This, however, is equally, in fact more often, a symptom of some form of chronic rhinitis. Sometimes the thickened mucosa herniates through the ostium of the sinus and protrudes into the nose as polyps in which case nasal obstruction will be a symptom. Headache and pain are not very common symptoms of chronic sinus disease, contrary to popular belief. Most chronic sinuses don't cause headache and most headaches are not caused by sinus disease. When headache and pain occur in chronic sinusitis it is usually during acute exacerbations induced by an acute head cold. Headache from maxillary sinus infection is often felt above the eye but may be felt in the cheek or referred to the ear. Frontal sinus pain is always felt in the frontal region. Ethmoid sinusitis causes aching pain in the region of the ethmoids between the eyes or in the frontal region. Sphenoid sinus pain may be felt in the occiput, in the top of the head, around the ear or in the frontal region. Loss of the sense of smell is an occasional symptom from chronic sinusitis when

the olfactory portion of the nose is blocked by polypoid mucosa protruding into this part of the nose. An important symptom of chronic sinus infection is susceptibility to head colds and another very important symptom is a chronic bronchitis or a bronchiectasis. It has been shown that if iodized oil is injected into the antrum today some of it will be in the bronchi tomorrow. During sleep when the swallowing reflex is quiescent some of the postnasal discharge flows into the lower air passages setting up and maintaining a chronic bronchial infection. Every patient with bronchitis or bronchiectasis should have the sinuses examined.

The diagnosis of chronic purulent sinusitis depends upon demonstrating that a sinus is filled with pus. First in importance is actually seeing pus coming from the sinus ostium. If we see this and the patient has not had a recent acute cold, our diagnosis of chronic sinusitis is made. However, the antrum, anterior ethmoids and frontal sinus all empty into the nose close together under the middle turbinate while pus from the sphenoid and posterior ethmoids is seen at the same point in the nose so that we cannot yet be certain which sinuses are involved. Moreover, in many cases of chronic purulent sinusitis repeated examinations of the nose will be negative and we must rely upon other methods of diagnosis.

The x-ray is second in importance in diagnosing chronic sinusitis but the x-ray is not infallible even when well taken since an old infection which has cleared up may continue to show an x-ray shadow due to increased bone density though the sinus be now healthy and clean. The x-ray is particularly unreliable in the case of the ethmoid where a negative x-ray plate may be obtained in an undoubted chronic purulent ethmoiditis.

Third in importance in diagnosing chronic sinusitis is the finding of hypertrophied mucosa in the nose at the sinus ostium. Fourth is transillumination, which is similar to the x-ray but less expensive, much less dependable and practically of value only in the case of the maxillary sinus. In the case of the ethmoid sinus the use of the displacement technic of Proetz is of considerable value in diagnosis. In the case of the antrum, exploratory irrigation is indispensable in confirming or ruling out a purulent maxillary sinusitis. Finally, in rare doubtful cases we may



be unable to make a positive diagnosis without opening the sinus operatively. This is especially true with regard to the frontal, ethmoid and sphenoid sinuses.

We come now to treatment. The treatment of chronic purulent sinusitis consists essentially of drainage and ventilation. Let us consider the sinuses one at a time.

A fair proportion of chronic maxillary sinusitis is the result of the mechanical inability of the sinus to extrude a thick, gelatinous accumulation of mucus. A single irrigation has cured a sinus infection of years' duration. Usually a series of a dozen or more irrigations are necessary before the washing is negative and the symptoms disappear. Even where the initial irrigation produces liquid pus with a foul odor, the chronic infection may clear up with irrigations alone so that in every case of chronic purulent maxillary sinusitis simple irrigations should be given a trial.

If a series of irrigations has not cleared up a chronic maxillary sinusitis and pus continues to collect in the sinus, then an operation is indicated to provide constant drainage and free ventilation. This operation consists of making a large window opening under the inferior turbinate. The anaerobic infection quickly subsides now that there is free ventilation, the production of pus steadily diminishes and in a few weeks the great majority of cases of chronic purulent maxillary sinusitis will have completely cleared up. The thickened mucosa shrinks and returns to a semblance of its former state. In the occasional case of chronic maxillary sinusitis the mucosa is so thickened and infected that even with adequate drainage and ventilation the production of mucus may continue indefinitely. Or sometimes the window opening may close before the infection has subsided. Removal of the thickened mucosa is now indicated and this is accomplished through an opening through the front wall of the antrum under the upper lip, the Caldwell-Luc radical antrum operation. In our experience this operation is not often necessary.

Chronic frontal sinusitis usually requires an intranasal operation to enlarge the nasofrontal duct followed by a series of irrigations. The external frontal sinus operation is rarely necessary and is one of those operations which have led to the bad reputation of sinus surgery since the

end-results may be worse than the condition for which the operation was done. We avoid the external frontal sinus operation wherever possible.

Chronic ethmoiditis sometimes responds to repeated evacuation by the Proetz displacement technic while improving the drainage from the upper part of the nasal cavity by correcting a deflected septum or by the use of neosilvol nasal packs to reduce the congestion of the mucosa may suffice to allow recovery. Other cases of purulent ethmoiditis, however, require surgical opening of the cells, satisfactorily carried out intranasally, as a rule. Chronic suppurative sphenoiditis usually requires enlarging of the ostium by an intranasal operation.

What is the effect of these operations on the function of the nose? The window operation on the antrum does not disturb in any way the air conditioning activity of the nose. The intranasal frontal and ethmoid sinus operations can usually be done without disturbing the turbinates and, here again, the result is an anatomically and physiologically normal nasal cavity. The sphenoid sinus operation usually requires removal of most of one middle turbinate and a mild atrophic rhinitis often ensues requiring saline nasal wash from time to time.

What are the end-results as far as cure is concerned? First, we must emphasize that a person who has recovered from a chronic sinusitis remains susceptible to recurrences for some time, but if these recurrences are promptly treated they can be quickly relieved and gradually the resistance of the sinus increases until there is no further trouble. We may compare a sinus infection to a corn of the toe. The corn can be gotten rid of by changing shoes or going barefoot but once there has been a corn on a toe, this toe remains susceptible to a recurrence for some time.

Poor results from the treatment of sinus disease can be attributed first, to wrong diagnosis; either there is no sinus disease or only one is being treated when several are involved; second, to wrong treatment such as nasal sprays for a maxillary sinusitis when irrigations are necessary; third, to over-radical operations with removal of functioning nasal tissue resulting in atrophic rhinitis; and fourth, to poor technic in carrying out nasal operations such as an operation to correct a deflected septum being incom-

plete and leaving the septum almost as deflected as before.

If the correct diagnosis is made and if the most conservative measures that will lead to a cure are employed and, finally and most important of all, if the patient is faithful and continues under observation until the condition has completely cleared up and any recurrences are cleared up, chronic purulent sinusitis can be cured in all but a very small proportion of cases by irrigation or by simple intranasal operations which are not disfiguring, which do not impair the function of the nose and will not leave the nose and sinuses worse than before, even should the sinusitis persist or recur.

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### RHINOPLASTY. SOME PRACTICAL CONSIDERATIONS

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Since the world war, plastic surgery in general and rhinoplasty in particular have sprung into prominence and at the present time are gaining more widespread interest than at any time in the past. Many factors have contributed to this phenomenon: among the most significant being the publicity emanating from Movieland and other centers of theatrical production and the instinctive desire for beauty which the motion picture has aroused. The continuous and frequent allusions to this subject in connection with prominent performers and numerous articles in the lay press have done much to raise the proposition out of the dusky limbo of mystery and superstition into the spotlight of inquiry and lively interest. There has been a tendency to dispel the notion that changing the shape of the nose is an admission of an inferiority complex and the public at large have become more tolerant and less critical of those who seek this type of work. Yet, despite the progress that has been made along these lines, there is still much to be accomplished before corrective rhinoplasty can be accepted without bias, properly evaluated and stripped of the chicanery, mysticism and skullduggery with which in many quarters it is still surrounded. To the vast majority of the public, the belief is still prevalent

that plastic surgery is an extremely difficult act and that skill in its practice is the particular God-given privilege of but a few chosen favorites. Also the idea that such operations are very expensive and beyond the reach of the average wage earner is erroneous and should be dispelled. The honest legitimate surgeon sets his fee within the patient's ability to pay regardless of the type of surgery that may be required. Much of the misconception and exaggeration connected with plastic surgery can be laid at the door of ethical practitioners who



Fig. 1. Broad twisted bridge; slight saddle; wide tip; flaring nostrils. Nasal bones fractured, ivory piece inserted to fill the depression, tip narrowed and flaring alae shortened. Type of case in which little improvement achieved because of general ensemble.

for years shunned this type of work, leaving it almost entirely in the hands of quacks and charlatans whose lack of skill was more than compensated by their marvellous salesmanship. But times have changed. In this seething restless world of today men and women will not be deterred by high minded professional scruples and will stop at nothing that will in their own opinion enhance their opportunities for gaining fame, fortune, adulation or whatever else may be their objective. As great a man as Gillies<sup>1</sup> only recently recognized the legitimacy of such aspirations and publicly stated that it was not only the prerogative but the duty of surgeons at large to qualify themselves in this field in order to better serve the public.

Much of the timidity of rhinologists in facing this subject has been due, first, to the lack of knowledge and training and second, to an

<sup>1</sup> Read before the Chicago Laryngological and Otological Society, March 4, 1935.

1. Gillies H.: The Development and Scope of Plastic Surgery. Northwestern University Bulletin. The Medical School, 35: 20, Jan. 28, 1935.



exaggerated idea of the difficulties and dangers inherent in the practice of plastic surgery. It is not our intention to minimize these factors but rather to point out that the correction of nasal deformities is no more difficult than any other nasal surgery provided one has the patience to learn some elementary principles and acquire a knowledge of technical details. Books on the subject are available, many of them replete with adequate illustrations and a visit to any of the



Fig. 2. Receding forehead and chin detract from appearance despite removal of hump. Type of case in which general ensemble outweighs any one feature.

larger centers will afford the student sufficient practical information to get him started. If he will then begin with the more simple procedures and gradually work up to the more complicated ones, provided he possesses average technical ability, proficiency will follow in the course of time. There is much, however, that can be said on the subject which is not to be found in text-books but which is nevertheless of paramount importance and it is the purpose of this paper to point out some practical observations which may prove of assistance to those who contemplate taking up this work.

In the first place it is important to differentiate the real from the imaginary deformity, ever bearing in mind that a patient who is not satisfied is likely to prove an incubus from which there is no escape. A safe rule to be observed is that the more minor the deformity, the less is the probability of success. A pronounced deformity properly corrected will be followed by sufficient change in the patient's appearance to evoke comment and unless the patient's friends notice the change, one's efforts may be in vain regardless of the fact that the operation was satisfactory to the surgeon. Operating to gratify

a patient's whim where the deformity is only in the patient's mind must be avoided and discouraged. To attempt to satisfy a patient whose mind is set on a change of features that is not indicated and may even be impossible of achievement is extreme folly and the sooner one learns to say "no" in these cases the better for both surgeon and patient. The motives which impel certain individuals to seek out a plastic surgeon are in many instances weird and bizarre and must be carefully considered before an operation is undertaken. For instance, take the case of a middle aged woman who broke down and confessed that she was seeking to improve her features in an effort to recapture the affections of an errant husband. The surgeon who attempts to satisfy the woman's ambition in such an instance lets himself in for a mess of trouble. No matter what he may accomplish surgically he is certain to fall short of attaining what his patient most desires and therefore his efforts will result in failure, recrimination and possibly a lawsuit at the hands of the disappointed spouse. On the other hand a young man or woman seeking advancement in a field of work where personal appearance is of importance but who is handicapped by an abnormal nose or ears is deserving of sympathy and should be helped. In this day



Fig. 3. Cartilaginous portion of nose twisted to left. Correction by submucous elevation of left side of septum to its summit below dorsal skin. Curve eliminated by hacking. Position maintained by wax plug within the nose.

and age great importance is attached to attractiveness among those who serve the public and where competition is so keen, the prize will often go to those most favored by Nature, frequently in preference to many who are more gifted in

talent but less prepossessing in appearance. The elimination of a homely feature not only becomes manifest in the patient's general features but also reflects itself in his bearing and disposition.



Fig. 4. Slight curved contour of bridge. Type of case where deformity is slight and correction difficult. Raising the tip slightly makes a marked difference.

We have seen many instances where a bashful, retiring, diffident and self-effacing individual became confident, aggressive and self-assured and where his entire mien and behavior changed for the better. But as we said before it is extremely important to differentiate between the real and the imaginary deformity lest one be involved in a fruitless quest which can only lead to disappointment and even recrimination.

In the second place it is essential that the surgeon make an accurate appraisal not only of the deformity but of its relationship to the other features. One cannot make a silk purse out of a sow's ear, neither can one expect beauty of a countenance to follow remodeling of a nose when the other features are out of harmony. For instance, a receding forehead and chin cannot be minimized by chopping down the nose as I have had occasion to observe and it is necessary to impress this fact upon the patient so that he may not be misled. The patient must be made to understand that changing the shape of the nose will not alter the angle of the forehead nor change the slant of the eyes and any improvement in the ensemble that may follow is to be considered so much velvet. In other words one must not promise the impossible but must stick closely to the facts. By taking a plaster impression of the patient's face and running up a model one is in

a position to demonstrate objectively just what can be done and what result may be expected. It is far better to understate the expected results than overstate them. Conservatism in the prognosis is the safest way to avoid disappointment. While this may not be consistent with good salesmanship and may often turn the patient away or affect the size of the fee collected, it is nevertheless the only honorable course to be followed.

In the third place the patient must be informed as to the possible complications that may ensue and thoroughly acquainted with the procedure in its essential details. It is the height of folly for the surgeon in his eagerness to "sell" the patient, to minimize the operation and gloss over the numerous discomforts and minor complications that usually follow these operations. The patient should know what the average period of disability will be; he should further be informed with regard to postoperative swelling, edema and discoloration of the lids, possible bleeding, nasal obstruction due to the use of packs, splints or whatever appliances may be in-



Fig. 5. Large bony hump in a patient with an old repaired hair lip. Removal by saw.

dicated. If implants are used, organic, inorganic, autogenous or whatever the surgeon's choice may be, the patient must know that there is a certain percentage of failure, due either to intolerance of the tissues, infection or possible postoperative trauma. A patient in full possession of all of these facts and possibilities who consents to an operation is likely to be far more cooperative and appreciative than one who is blindly led into it by glib promises and exaggerated claims.



Coming down to the operation itself let us see what precautions are necessary, what type of case is favorable, what type is particularly difficult and what the pitfalls are to be avoided.

In the first place the operation should not be performed during a season when respiratory in-



Fig. 6. Hump and long nose. Former removed by saw. Latter corrected by usual triangular excision of lower end of septum and upper lateral cartilages. Procedure comparatively simple. Marked deformity and striking result. The type of case usually very satisfactory.

fections are most prevalent. One never knows what virulent organisms may be harbored in the tonsillar crypts or other lymphoid tissue of the prospective patient at such a time. Neither should the operation be done too recently following a cold or sore throat. At least two weeks should elapse following recovery from such an infection before nasal surgery is attempted. In the second place one should have a definite plan of procedure carefully worked out in advance. It is neither safe nor scientific to start the operation and develop the successive steps as one goes along because it is often impossible to retrace one's step. In the third place the patient should be properly prepared. Morphine and atropine or scopolamine administered an hour in advance does much to allay the nervous tension under which most patients labor. The face should be washed and wiped with alcohol. The vibrissae should be clipped and the vestibule and external nose touched with half or quarter strength tincture of iodine. The mucosa needs no cleansing agent because of its protective blanket of mucosa and inherent resistive powers. Prior to the injection of novocaine the anterior part of the

septum should be anesthetised with pledgets of cotton with 10% cocaine. This makes the needle punctures less painful. The injection of novocaine 1% with adrenalin is performed through a 27 gauge needle first introduced at the mucocutaneous border and then carried backward over the septum. Again introduced at the mucocutaneous border the injection is carried along the length of the membranous septum thus infiltrating both sides at once. The injection is carried from the anterior nasal spine upward to the summit of the free border of the septum and from here in an outward direction along the projecting border of the upper lateral cartilage. A longer needle is now used to gain access to the nasal dorsum, the fluid being deposited in the loose subcutaneous tissues all the way up to the glabella. While the procedure is carried on the opposite side the tissues are gently massaged between the thumb and forefinger to distribute the fluid equally.

During the operation itself it is unwise for the surgeon to think out loud. Even though the patient may be partly asleep from the effects of the preoperative medication he is still sufficiently conscious to apprehend what is going on and will react unfavorably to remarks that the surgeon may utter for the benefit of his assistants or nurses, particularly when these comments pertain to the difficulty of the operation. The patient is likely to distort or exaggerate the surgeon's remarks and thereby increase his apprehension and fear as to the ultimate outcome. It is of the greatest importance that the patient maintain his confidence in the surgeon and retain that placidity of mind and spirit which is so essential to a satisfactory result. We must bear in mind that an individual undergoing a rhinoplastic procedure is usually a bit more self-conscious than under other conditions and is easily susceptible to suggestion. It is essential that his frame of mind be as happy as possible. There is no place for doubt once the procedure has been embarked upon.

Coming now to the operative procedures themselves, there is considerable variation in the difficulty and inherent dangers among them, of which it is well to speak more in detail. In other words, some operations are comparatively simple and free from danger while others require considerably greater skill and carry with them a certain element of risk. In general those pro-

cedures which are confined to the lower half or cartilaginous portion of the nose are easier to do and less likely to be followed by complications than those in the upper half or bony portion. Infections are far more frequent following removal of a hump or nasal refracture than such operations as raising the tip or shortening the nose. The reason for this lies in the fact that operations on the bony framework necessitate intra-nasal elevation of the periosteum which creates an artificial cavity into which infection may easily enter; this is particularly true if bony fragments or blood clots are left behind.

Among the operations most frequently performed on the cartilaginous part of the nose may be mentioned those which aim to shorten the nose or narrow the tip. The former is accomplished by excising a wedge, base upward from the lower free border of the septal cartilage including the mucosa on both sides and two smaller triangular wedges from the upper lateral cartilage. To do this properly it is necessary to have the incision through the membranous septum extend from the anterior nasal spine below up to the very summit of the quadrilateral cartilage. It is also important that the upper lateral cartilages be severed from their attachment to the septum so that the excision may be adequate and permit the overlying skin to slide upward without causing a thick buckling when the columella and tip are pushed upward. Silk sutures passed through the septum and the membranous septum behind the columella pull the latter upward and anchor it in its new position. The incisions in the lateral cartilage require no sutures but are held away from the septum by either a vaseline pack or a plug of dental wax. Adhesive strips holding the tip upward and temporarily exaggerating the correction are worn for at least 10 days to 2 weeks in order to take the tension off the sutures and prevent stretching and subsequent sinking of the tip.

Of the various methods of narrowing the nasal tip we believe that described by Safian<sup>2</sup> is the most practical as it offers easier access to the lower lateral cartilages whereby the excision may be more accurately performed. Here also sutures are dispensed with and the vestibule is merely packed for a day or two. The after care of these cases is extremely important inasmuch as fre-

quently there is a tendency for sufficient scar tissue to develop in the spaces from which the cartilage was excised thus filling the tip and defeating the purpose of the operation. We have lately found it very useful to apply pressure over each side of the tip by means of small plates of copper, held in place by strips of adhesive. The effect of this procedure is to keep the external skin in close contact with the underlying severed cartilage until the latter is healed thus eliminating the space into which granulations might



Fig. 7. Dislocation of lower end of septum; nose deviated to the right. Correction by nasal refracture and reposition of septal cartilage according to Metzenbaum.

grow and develop into a thickening. The copper and adhesive strips are removed every 48 hours to permit cleansing of the nose. This method of treatment is carried on for about two weeks or until the wounds are completely healed.

A more difficult procedure is involved in correcting a deviated nasal tip. This condition may be part of a twisted nose due to an old fracture or it may be caused by a long septum which is bent in its lower portion thus pushing the lower end of the nose off to one side. In the former instance no amount of surgery on the cartilages will suffice unless the nasal bridge is refractured

2. Safian, J.: *Corrective Rhinoplastic Surgery*. Paul B. Hoeber, 1935.



and set in the midline. Should the deformity involve only the septal cartilage it will be necessary to remove the projecting end of the septum if it be too long thus shortening the nose or do a conservative operation on the septum itself. The object of the latter is to straighten the curve in the septum without removing any of the cartilage. This is accomplished by elevating the muco-perichondrium on the convex side all the

strip may be removed by means of Cavanaugh's spokeshave or sharp elevators, the objective being to take the spring out of it so that it can be set in the midline where it belongs. It is occasionally necessary to employ Metzenbaum's technique of replacing the free septal border behind the columella in cases where this border lies free in one nostril and where shortening the nose is not indicated. In any event following the operation it is well to pack the previously convex side so as to overcorrect the deformity. Such a pack may be left in place for 48 hours and if necessary can be replaced by a plug of dental wax for an additional 2 to 4 days.

Should the septum be deviated in its bony portion, such deviation can be corrected at the same sitting. It is necessary then to detach the cartilage at its base and incise it posteriorly where it joins the perpendicular plate. It is then held aside by a Killian speculum while the deflected bone below and posterior is removed in the usual way.

The subject of septal deviation in association with other nasal deformities especially those involving the bony framework is one that requires especial study. In some quarters there is a disposition to leave the septum alone while correcting a crooked nose and in others it is recommended that the resection be performed preliminary to the nasal refracture. In my opinion it is unwise to do either. A preliminary septal resection may weaken the framework of the nose to such an extent that subsequent refracture may result in a sinking of the cartilaginous portion, whereas a resection that is deferred to a later date may never be done because the patient is unwilling to undergo a second operation. Besides a twisted septum may actually cause a recurrence of a nasal twist despite a refracture because of the elasticity of the cartilaginous portion. In my own cases, therefore, I have found it expedient to correct the septal deviation in one sitting with whatever operation may be required for the nasal bridge. Only, instead of removing the septum as is the usual custom, I make it a point to preserve as much of the cartilage and bone as is consistent with establishing a satisfactory airway. By removing strips of cartilage as recommended by Cavanaugh and infracting the projecting bony portions one can get away with but a minimum of tissue removed and thereby retain a firm septum sufficient



Fig. 8. Combination of bony hump, twist and long nose. Hump removed by saw, nose straightened by infracture of nasal bones. Nose shortened.

way from the base to the dorsum. It may even be necessary to dissect the cartilage free from its attachment to the dorsal skin in cases where the cartilage is twisted off the midline. As long as the cartilage remains attached to the muco-perichondrium of the opposite side its vitality will be preserved and it can be manipulated as desired. The curve in the cartilage is eliminated by one or more incisions running the length of the curve and where the cartilage is in excess, a

to maintain the contour of the nose. This work is always done first and is then followed by the necessary procedures on the external framework.

The removal of a nasal hump is in most instances a rather ticklish problem. A very slight prominence of a thin nasal bridge can be readily obliterated by the use of a rasp. But the same elevation on a broad nose will not only defy the rasp but often leave a broader and uglier looking nose. Any hump, small or large that is associated with a fairly broad nose necessitates infracture of both nasal bones in order to narrow the bridge and make it commensurate with the lowered profile. This infracturing of the nasal bones is accomplished by sawing through subperiosteally on both sides and pushing the bones medially by pressure of the thumb.

A word of caution regarding the use of the rasp. Experience has taught us that too energetic use of this instrument is fraught with danger. It frequently results in stimulating new bone formation so that the original hump is often replaced by a thick broad bony mass. Also it is difficult to completely remove the fine bony fragments which remaining behind may be implanted in the exposed raw bone and develop new tissue. Anything more than a slight hump must be removed by other means. One has the choice of saws or chisels. The latter accomplish the task more cleanly but are difficult to control as to depth. Many chisels have been devised to overcome this handicap but the fact nevertheless remains that it is extremely difficult to guide a chisel blindly underneath the skin so as to take off just the required thickness. The saw is more easily applied and possesses the additional advantage of taking off the protuberance in one piece frequently with the cartilaginous portion so as to result in one straight line. It is necessary to have the skin and periosteum well elevated so that a retractor will expose the bony and cartilaginous dorsum to the operator's inspection. He will then be in a better position to place the saw accurately and subsequently to shave off any uneven cartilaginous projections. These little niceties come with experience but can be acquired through careful and painstaking attention to detail.

Following any operation on the framework of the nose where the skin and periosteum have been elevated it is important first of all to remove all debris such as bone dust, chips of

cartilage and clots at the close of the operation and then to apply some sort of pressure that will keep the soft tissues in accurate and smooth contact with the underlying bone. Various appliances are used for this purpose. My own choice is the molded copper splint padded with two layers of lint which I have described in a previous article.<sup>3</sup> This is retained for 24 to 48



Fig. 9. Congenital saddle nose. Correct by single ivory implant.

hours and if necessary may be worn for 10 days to 2 weeks. The prolonged wearing of this splint is required only where the nasal bones have been infracted and it is necessary to prevent spreading. In such cases it is removed every other day and readjusted with clean padding before being replaced.

A few more words on the subject of saddle nose. The material to be employed depends not only on the surgeon's particular fancy, but on the type and location of the defect. Saddle deformities of slight degree may be nicely filled with auricular cartilage. A narrow strip of cartilage may be removed from back of the auricle without endangering its integrity and is usually well borne in its new bed. One must, however, be extremely careful to control all bleeding and to apply firm pressure to the auricle for several days in order to prevent a possible hematoma. For larger depressions auricular cartilage will be found insufficient and one must

3. Salinger, S.: The Copper Molded Splint. *Arch. of Otolaryngology*, 20: 211, 1934.



then choose between bone, costal cartilage or ivory. Bone transplants, either tibial or costal, require especially careful technique and are more likely to be absorbed or yield to infection than costal cartilage alone. Yet in the hands of a few they have accomplished the purpose remarkably well and must be considered in cases where the saddle deformity is due to a deficiency in the bony nasal structure. Otherwise it is far better to rely on costal cartilage or ivory. There is no objection to the former in most cases. In some



Fig. 10. Depressed tip due to former septal abscess. Corrected by two interlocking ivory implants.

instances, however, ivory is preferable. This applies particularly to those cases where the nasal tip has sunk because of loss of the cartilaginous septum from a previous septal abscess. Here it is necessary not only to fill the dorsal defect but to prop up the tip with a firm material. Two interlocking ivory implants along the lines which I described in 1931,<sup>4</sup> fulfill this object in the vast majority of cases. Time will not permit a more extended discussion of the relative merits and disadvantages of ivory. That is a matter on which I could spend at least an hour. Suffice for the present that my experiences during the past ten years covering over one hundred ivory implants have been in the main extremely gratifying and I should like on some future occasion to point out some of the lessons I have learned

4. Salinger, S.: Ivory Implants for Saddle Nose: Results in Fifty Cases. *Annals of Otol., Rhinol. and Laryngol.* 40: 801, 1931.

which might prove helpful to those who contemplate using this material. These cover such angles as the kind of ivory to be used, its method of preparation, technique of insertion and above all the selection of cases where it is best adapted.

Another topic which merits special consideration is the management of recent nasal fractures, a subject which has received some considerable attention in recent years but is still far from being exhausted. Many rhinologists are to this day rather vague in their ideas of how to handle these cases, particularly in children and also as to the procedure in instances where the nasal fracture is associated with other injuries.

In closing I desire again to emphasize the importance of every rhinologist informing himself on the subject of rhinoplastic surgery, not only because he may find certain procedures adaptable to his practice and within the scope of his surgical ability but also because he will be in a better position to discuss the matter intelligently with those who seek his advice and finally because it is an extremely interesting and absorbing topic.

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## THE SURGICAL ANATOMY AND ESTHETIC EFFECTS OF SUBMUCOUS RESECTION

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Submucous resection is ordinarily considered one of the most conservative of intranasal operations, for the following reasons: It involves a small incision, the edges of which close very readily. Convalescence takes place in a short time. Except for an occasional perforation the operative risk is minimal. The same general procedure is adaptable to the majority of deviations.

In spite of these advantages, T. R. French,<sup>1</sup> as early as 1906, emphasized that this operation was not the only one for septal deformities.

The number of submucous resections resulting in nasal deformities renders this problem important. This operation has been performed for many years and for many conditions, some of which have no direct connection with the nose.

Its most common purpose is to obtain an

Read before the Edgewater Hospital Staff, Chicago, Nov. 19, 1935.

1. French, T. R.: *New York Med. J.*, 84: 1016, 1906.

adequate air passage. Deviations of the nasal septum are multiple and complex in form and extent. The parts of the structure involved vary according to the seat of the deviation. Therefore, the most rational classification of deviations is based on the anatomy of the septum.

Among the usual types of deviations are:

1. Anterior deviation (cartilaginous),
2. Posterior deviation (bony),
3. High deviation (near the ethmoid),
4. Spurs, crusts, or thickening, (not true deviations of the septum).

There are many variations of the above deformities as to size, arrangement and position. For instance, the irregularities due solely to trauma may range from simple anterior deviations to accordion pleated deviations and fractures.

Deviations complicated by other nasal anomalies, such as hypertrophied turbinates, usually indicate to the surgeon the necessity for the usual submucous resection, to obtain an adequate air passage.

The usual submucous resection is commonly performed regardless of the variety of deviation. In other words, we resort to one rather extensive operation, with its various anatomic and esthetic hazards, for relief of a variety of septal conditions. It has been complacently assumed that this operation is the only one for septal deformities.

In the attempt to get a perfectly straight septum the temptation is great to remove more of the cartilage than is safe, and sunken noses are often the result of such radical removal. It is the purpose of this paper to illustrate how deformity of the external nose in its anteroposterior dimension may result from operations to correct these lateral deviations of the septum.

The contour of the nose depends upon the underlying cartilage and bone. The root of the nose is supported by the nasal bones. But the nasal bones support only the upper two-fifths of the nasal pyramid. The nasal cartilages help, in a measure, to support the fleshy part of the nose, but the contour of the lower three-fifths of the nose is dependent almost entirely upon the extent of protrusion of the nasal septum.

The anatomy of the septum, therefore, assumes surgical importance because of its influence upon the shape of the fleshy part of the

nose. The beauty or ugliness of the nose may depend upon the extent and type of septal support it receives.

The septum is a plate of bone and cartilage, and extends from the posterior nares to the tip of the nose. It is an irregular oblong: it is wider posteriorly and narrower anteriorly. Anteriorly, it can be felt as the free border above the columellar cartilage. Posteriorly it ends at the nasopharynx. It fits into the maxillary groove below. An anterior-superior border can be felt through the fleshy ridge of the nose, and it will be noted that this border is slightly thicker than the balance of the septum. Anteriorly the septum is entirely cartilaginous. The middle portion is the very thin vomer. The anterior septum and the vomer merge above with the anterior plate of the ethmoid. Posteriorly the



Fig. 1. Cosmetic result after repeated extensive submucous resections.

septum ends as it meets and joins the septal extensions of the palatal bones.

Two points regarding the septum are important. One is that the columellar cartilage is very weak and not rigid enough to support the nasal tip or nasal ridge if the septal support is removed. The other point is that the septal-nasal-bone junction is very weak, and avulsion of this osteochondral synarthrosis during submucous resection may result in a collapsed nasal pyramid.

A typical case will illustrate a number of factors involved (Fig. 1)

L. H. White, aged 25 years. Seen Aug. 15, 1935: Is very sensitive about the shape of his nose and seeks cosmetic correction. He states that he suffered a nasal fracture at the age of four or five, and there was no post-traumatic deformity. (The diagnosis of fracture



here is questionable. The nasal bones at this stage of development are cartilaginous in consistency, gristly, and show some pliability.)

At the age of fourteen, he was operated on for deviated septum, and shortly after noticed that his nose began to collapse. He was very sensitive about this deformity. At the age of twenty, another doctor operated and resected still more septum. The nose is now almost completely collapsed.

The patient is introspective and discouraged. He is backward socially because of his facial disfigurement.

Physical examination gives the following findings: The septum is rather pale, the air passage is still deficient. The resected septum is replaced by fibrous tissue. The nose presents an almost "dishface" deformity. The bridge is very much flattened, the nasal root is slightly flattened and thickened, with a collapsed nasal ridge. The nasal tip extends forward and downward slightly. Widened and flattened alae. Beyond any doubt this man's deformity is due to removal of too much septum. The entire condition is clearly attributable to overzealous submucous resection.

The paleness of the septum is due to the unjustified trauma. The fresh anastomoses to restore the obliterated blood vessels had little chance of restoring the vascular septum to normal.

The fibrous replacement tissue bears the same re-

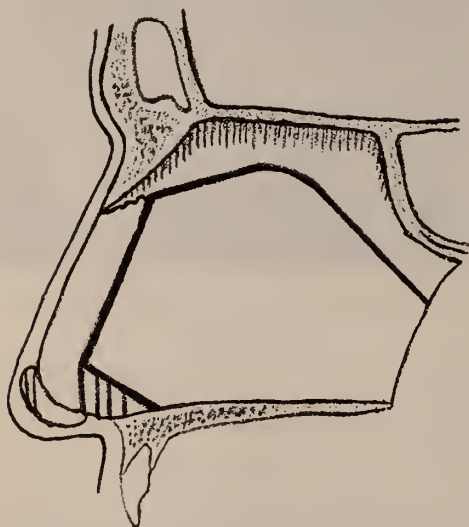


Fig. 2. Reproduced from a textbook. Extensive anterior resection invites collapse.

lation to the perichondrium and periosteum as previously.<sup>2</sup>

The collapsed nasal ridge is directly traced to the removal of the septal support. The columellar cartilage, intact, extends the tip of the nose forward, enhancing the grotesque effect.

But the load is too great for the columella, and it is bent downwards; as a result the alae are flattened against the face. (Fig. 2).

Most text-books exhibit diagrams showing how

much septal cartilage may be "safely" removed. The illustration here shown (Fig. 2) is reproduced from a standard work. If the amount of cartilage "safely removable" as here shown, is excised the architecture of the nose cannot remain normal. It will collapse, to the mortification of the patient and the chagrin of the operator.

Leaving only the narrow anterior ribbon of cartilage to support the lower three-fifths of the nasal cone, is poor cosmetic "engineering." The septal cartilage must be visualized as a central buttress to support the lower three-fifths of the nasal pyramid. It is even when intact a weak support.

If only this thin ribbon is left, as is illus-

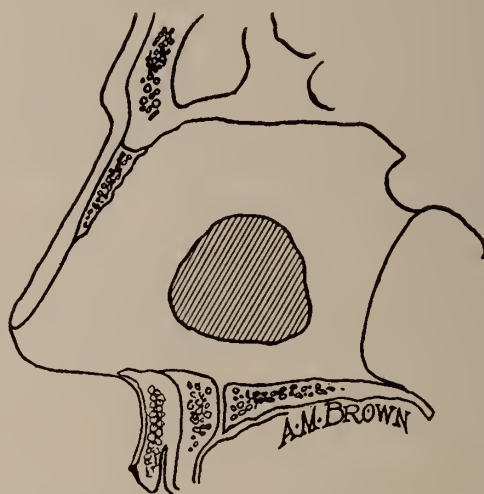


Fig. 3. Illustrating a conservative cosmetic resection, leaving an adequate bony and cartilaginous ring around the resected area.

trated, the support normally transferred upward and forward through the body of the septum is gone. The narrow ribbon of cartilage remaining acts as a very weak strut, with its support only the synarthrosis with the nasal bones, above, and below from the columella. The columella is weak. In collapsed noses it may bend with the deviation of the septum, or arch itself with the convex side downward.

As usually performed, the swivel knife is used by some operators, and septum forceps by others. Some use both. The septum forceps should not be used anywhere near the septo-nasal bone synarthrosis, because avulsion near this point may tear the synarthrosis loose, and cause recession of the nasal ridge and concomitant prom-

2. Babbitt, J. A.: J. A. M. A., 63: 1822, 1914.

inence of the bridge. Avulsion of septal cartilage is always a cosmetically risky procedure.

Resection by means of avulsion of the septal cartilage and bone is inaccurate, sometimes "messy," and leaves the operator without control. Conversely, removal of the obstructing portion of the septum only cannot be praised too highly, especially if performed with a swivel knife, which renders the procedure safer because of the control factor.

The authoritative dictum concerning the removal of only the offending portion of the septum is correct from two standpoints: 1. It accomplishes the purpose of clearing the air passage, especially if the resiliency of the flaps is broken up. 2. It is a cosmetic safeguard for the nasal profile.

Too often a cosmetic disaster is due to inexperience or caprice of the operator who approached the bridge of the nose too closely. In the attempt to get a perfect airway, the temptation is very great to remove more of the cartilage than is safe, and sunken noses, as described, result from such radical removal.

It should be seriously borne in mind that if there is any danger that submucous resection will cause collapse, it is more purposive to increase the airway by other methods. The turbinate can be obliterated for an airway. Polyps may be found and removed, and adenoidectomy should not be overlooked.

Some rhinologists deliberately perform a submucous resection to "improve" a prominent nose. This is seldom if ever justified. The writer has seen such cases. Perhaps these operators feel that they are at least removing some nasal tissue, and the removal will decrease the anteroposterior dimension of the nose. This procedure must be condemned. Study of the anatomy will reveal that only two possibilities are to be expected: One is that the resection will not be extensive and fortunately will have no effect on the nose esthetically. The other possibility is that the operation will be extensive enough to lessen the anteroposterior dimension of the septum, and the crest of the nose will sag for lack of support, with eventual collapse. The nasal bones, left untouched, will be thrown into sharp relief, causing a sharp "eagle beak"

profile, and the alae, left unsupported by their normal buttress, the septum, will be flattened against the cheeks. Thus, although the inexperienced operator has achieved his poorly conceived aim and reduced the anteroposterior measurement, with the accentuated bridge, flattened alae and collapsed tip, the patient is left with a cosmetic defect bringing grief even to individuals who are indifferent about their appearance.

The age of the patient is important. No submucous resection should be performed before the patient has reached the eighteenth year.

Deviations of the anterior septum require exceedingly careful investigation. Very often they are accompanied by a "hanging columella," which is unsightly. Here the experienced surgeon with an artistic eye can accomplish cosmetic good. In such cases it is best to excise the wedge of offending cartilage, leaving the columella intact, and resuturing it to the lower border of the septum and over correcting the nasal tip to allow for shrinkage. It is best to prepare casts of the nose in cases of this type and experiment with reproductions made from the cast until the desired effect is obtained, before attempting operation. The cosmetic improvement in cases of this type is startling, and the patients are always gratified. In other words, for anterior deviations with hanging columella, a submucous resection will be of no cosmetic benefit. For a prominently deviated columella, the plastic operation positively resecting the hanging septum is indicated.

#### SUMMARY

1. The surgical anatomy of the septum is discussed.

2. The esthetic hazards of submucous resection are emphasized.

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Due in a large part to the doctors themselves, the prevailing thought about town is that no one pays for his medical service. This is largely brought about by the manner in which physicians continually bemoan to the laity about no one paying his bills. If Mr. Smith hears that Mr. Jones and Mr. Brown never pay, and can always receive medical attention just the same, he naturally figures, "Why should I pay?" We should assume an attitude that most people pay, and that those who do not are being temporarily cared for, due to hard times.—*Luzerne County Medical Bulletin*.



# A STATISTICAL STUDY OF THE OBSTETRICAL PRACTICE IN A SMALL CITY HOSPITAL

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During the last few years, a great deal has been said and written regarding maternal and infant mortality and morbidity as related to obstetrical practice. It, therefore, seemed to be of clinical and perhaps of scientific interest, to make a careful statistical survey of the obstetrical experience of a small city hospital, since most of the reports come from the large metropolitan areas. The survey embraces the two years, 1932 and 1933, and a comparison of the two years is given. While the number of cases studied is of necessity small so that no very profound conclusions can be arrived at, nevertheless, several interesting observations have been made.

The institution from which the report is made,\* is a 74 bed general hospital, located in an urban population of about 30,000. It is the largest of four general hospitals in the community. Part of the hospital's revenue comes from city taxes and the institution is under the direction of a Board of Trustees appointed by the Mayor of the city. There are no free beds in the hospital. There are about 40 physicians regularly in attendance, and of this number, 25 constitute a regularly organized staff which meets monthly for scientific discussion. None of the physicians in attendance at obstetrical cases limit their practice to obstetrical cases but are general practitioners of medicine and surgery. A training school of 40 nurses makes up the undergraduate nursing personnel and a staff of 9 graduate nurses is in charge of the hospital management and training school.

The following is a summary of the statistical study:

	1932	1933	Per Cent	
			1932	1933
1. Total labors .....	196	200	....	....
Para 1 .....	104	103	53.06	51.50
Para 2 .....	54	51	27.55	25.50
Para 3 .....	18	22	9.18	11.00
Para 4 .....	11	13	5.66	6.50
Para 5 .....	4	5	2.00	2.50
Para 6 .....	0	3	0.00	1.50
Para 7 .....	4	2	2.00	1.00
Para 8 .....	0	1	0.00	0.50
Para 11 .....	1	0	0.50	0.00

\*Burnham City Hospital, Champaign, Illinois.

2. Baby's sex:				
Male .....	95	98	48.00	49.00
Female .....	101	102	52.00	51.00
3. Maternal deaths .....	0	2	00.00	1.00
4. Stillborn .....	7	5	3.57	2.50
5. Fetal deaths within 48 hours .....	5	2	2.55	1.00
6. Cesareans .....	4	10	2.04	5.00
7. Low forceps .....	30	30	15.30	15.00
8. Midplane forceps .....	10	11	5.10	5.50
9. High forceps .....	8	7	4.10	3.50
10. Version .....	2	1	1.02	0.50
11. Breech .....	6	6	3.10	3.00
12. Face .....	1	0	0.51	0.00
13. No lacerations .....	66	94	33.67	47.00
14. Episiotomies .....	43	44	21.94	22.00
15. Lacerations:				
First degree .....	48	28	24.49	14.00
Second degree .....	37	20	18.88	10.00
Third degree .....	2	1	1.02	0.50
16. Maternal temperatures over 100 degrees .....	63	69	32.14	34.50
17. Average weight of babies exclusive of stillborn.....	Lbs. 7½	Lbs. 7½		
18. Duration of labor from time of admission to delivery:				
	Hrs.	Hrs.		
Para 1 .....	10¾	12¾		
Para 2 .....	6	5½		
Para 3 .....	7¾	7¾		
Para 4 .....	11	10¾		
Para 5 .....	12¾	10¾		
Para 6 .....	..	6¾		
Para 7 .....	10¾	9¾		
Para 8 .....	..	4		
	Days	Days		
19. Average days in the hospital	9¾	8½		
20. Maternal Ages:				
	Years	Years		
Para 1 .....	25	24½		
Para 2 .....	28	27		
Para 3 .....	31	28½		
Para 4 .....	32½	31		
Para 5 .....	33½	34		
Para 6 .....	..	33		
Para 7 .....	38½	36		
Para 8 .....	..	40		
Para 11 .....	41	..		

It should be stated that there was no attempt in the survey to correlate definitely the rise in the maternal temperature with any particular pathological process. Below will appear a summary of the abnormal conditions found in those cases running a temperature above a hundred degrees sometime during their stay in the hospital.

It should also be stated that in determining the duration of labor the records did not state the actual time of the beginning of labor. As a result, the length of labor was figured from the time of admission to the hospital to the time of delivery.

A more detailed and comprehensive explanation of certain features is given below.

Stillborn cases in 1932:

1. Cord around the neck. Para 1. Labor normal.
2. Breech. Para 4.
3. Abdominal pregnancy with Caesarian. Para 11.
4. Eight-month pregnancy. Para 2.

5. Breech. Delivery except head on way to hospital. Para 2.
6. Premature. Eclampsia. Para 1. Age 30. Labor induced with bag.
7. High forceps. Para 1. Age 42.

## Stillborn cases in 1933:

1. Cord around the neck four times.
2. Version following unsuccessful forceps. Contracted pelvis. Para 1. Age 26.
3. High forceps. Large head. Para 1. Age 28.
4. Premature, three months. Premature rupture of membranes. Transverse position.
5. Premature separation of placenta. Seven and a half months pregnancy.

## Other fetal deaths within forty-eight hours in 1932:

1. Convulsions. High forceps. Weight eight pounds seven ounces. Para 1. Age 32. Labor thirty-one hours.
2. Lived ten minutes. Para 1. Age 25. Quinine and castor oil after two days of false pains.
3. Head injury. Occiput posterior. Mid-plane forceps. Para 1. Age 24. Labor thirty-three hours.
4. Premature two and a half months. Placenta prævia.
5. Premature. Weight three pounds. Breech delivery.

## Other fetal deaths within forty-eight hours in 1933:

1. Premature, three and a half months. Breech. Para 4. Age 24.
2. Forceps. Occiput posterior. Para 1. Age 21.

There were two more fetal deaths in 1933 during the stay of the mother in the hospital. One was a case of jaundice and poor breathing. Baby never nursed. Second case died on the sixth day, was premature two and a half months.

In 1932, there were no maternal deaths. In 1933, there were two cases: first, Para 7, age 37, breech delivery, severe hemorrhage, transfusion, death on fourth day; second, Para 1, age 25, death on twenty-third day of bacterial endocarditis.

## Cesareans; 1932:

1. Abdominal pregnancy.
2. Breech. Contracted pelvis.
3. No indications given.
4. No indications given.

## Cesareans, 1933:

1. Fibroids.
2. Contracted pelvis.
3. Contracted pelvis.
4. Pre-eclampsia. Contracted pelvis. Premature rupture of bag of waters.
5. Contracted pelvis.
6. No indications given.
7. Placenta prævia. Premature rupture of bag of waters.
8. No indications given.
9. Contracted pelvis. Fibroids.
10. Bronchitis. Anemia.

## Low forceps in 1932:

- Para 1. 25 cases. 5 cases labor longer than 16 hours.
- Para 2. 2 cases.
- Para 3. 2 cases.
- Para 7. 1 case.

## Low forceps in 1933:

- Para 1. 17 cases. 4 labors longer than 16 hours. One case with temperature of over 101 without determined cause.

## Para 2. 2 cases.

## Mid-plane forceps in 1932:

- Para 1. 8 cases.

## Para 2. 2 cases.

## Mid-plane in 1933:

- Para 1. 9 cases.

## Para 2. 2 cases.

## High forceps in 1932:

- Para 1. 8 cases. Two, occiput posterior.

## High forceps in 1933:

- Para 1. 5 cases. One, occiput posterior.

- Para 2. 2 cases. One, occiput posterior.

## Versions in 1932:

1. Para 1. Age 25. Bag induction. Unsuccessful forceps delivery.
2. Para 1. Age 20. Placenta Prævia. Two and a half months premature.

## Versions in 1933:

1. Para 1. Age 26. Narrow pelvis. Unsuccessful forceps delivery.

## Breech deliveries in 1932:

- Para 1. 2 cases.

- Para 2. 2 cases, one delivering except head on way to hospital.

## Para 4. 2 cases.

## Breech deliveries in 1933:

- Para 1. 1 case. Bag induction, following castor oil and quinine.

## Para 3. 1 case.

- Para 4. 2 cases, one premature three and a half months.

## Para 5. 1 case, premature, two and a half months.

- Para 7. 1 case, followed by severe hemorrhage.

	1932	1933
No lacerations:		
Para 1 .....	17 cases	30 cases
Para 2 .....	24 cases	23 cases
Para 3 .....	10 cases	20 cases
Para 4 .....	7 cases	10 cases
Para 5 .....	4 cases	5 cases
Para 6 .....	None	3 cases
Para 7 .....	4 cases	2 cases
Para 8 .....	None	1 case

## Episiotomies:

Para 1 .....	35 cases	37 cases
Para 2 .....	6 cases	7 cases
Para 3 .....	2 cases	None

## Lacerations, first degree:

Para 1 .....	28 cases	13 cases
Para 2 .....	14 cases	13 cases
Para 3 .....	4 cases	1 case
Para 4 .....	2 cases	1 case

## Lacerations, second degree:

Para 1 .....	25 cases	14 cases
Para 2 .....	8 cases	4 cases
Para 4 .....	2 cases	2 cases

## Lacerations, third degree:

Para 1 .....	2 cases	1 case
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Patients who ran temperatures over 100 while in hospital:

Forceps .....	27 cases	15 cases
Version .....	2 cases	None
Bag or pack induction.....	4 cases	None
Manual removal of placenta.....	3 cases	3 cases
Low hemoglobin .....	2 cases	None
Sore throat .....	1 case	None
Caesarian .....	3 cases	9 cases
Phlebitis .....	1 case	1 case
Septic temperature? .....	1 case	None
Subinvolution .....	1 case	None
Stillborn .....	1 case	3 cases
Breech .....	2 cases	2 cases
Prolapsed cord .....	1 case	None
Premature separation of placenta....	None	2 cases
Mastitis .....	None	1 case
Mastitis with suppuration.....	None	1 case
Bacterial endocarditis.....	None	1 case
Cystitis .....	None	1 case
Bronchitis .....	None	1 case
Premature rupture bag of waters...	None	1 case
Arrested pulmonary tuberculosis....	None	1 case
Cause undetermined.....	14 cases	27 cases

As stated above, no attempt has been made definitely to assign these causes as the explanation for the temperature, but they appear to be the most plausible. Other noteworthy features:

	1932	1933
Hairlip .....	1 case	None
Premature stillborn:		
Mother had severe mitral and kidney lesions and previously had been insane .....	1 case	None
Abdominal pregnancy stillborn.....	1 case	None
Castor oil and quinine induction....	10 cases	2 cases
Gauze packing induction.....	3 cases	None
Bag induction .....	3 cases	1 case
Placenta praevia .....	2 cases	None
Subinvolution .....	1 case	None
Post-operative hernia .....	1 case	None
Prolapsed cord .....	1 case	None
Preeclampsia .....	3 cases	3 cases
Chronic nephritis .....	1 case	None
Club feet .....	None	2 cases
Hyocine and morphine.....	None	1 case
Imperforate anus .....	None	1 case
Hemorrhage on eleventh day.....	None	1 case
Premature separation of placenta....	None	1 case

#### CONCLUSIONS

1. Maternal death rate in 1932 was 0%: in 1933, 1%: for the two years 0.5%.
2. The stillborn rate in 1932 was 3.57%; in 1933, 2.50%: for the two years was 3.03%.
3. Infant deaths within 48 hours in 1932 was 2.55%; in 1933, 1%; for the two years 1.77%.
4. Total infant mortality for the two years was 2.41%.
5. The maternal morbidity as compared with other reports appears to be average or below.
6. The incidence of operative interference, as compared with other reports was average or below.
7. There appeared to be a definite correlation between the development of fever in the mother and operative interference.

8. There was a most interesting, yet unexplainable relationship in the comparative figures of the two years, in the duration of labor in the various groups classified as to parity.

#### TRANSURETHRAL PROSTATIC RESECTION

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A subject that has gained such tremendous popularity in so short a time must be worthy of any discussion or consideration, especially since it tends to revolutionize prostatic survey to such an extent that Moore, in a recent paper, asked if prostatectomy is to become obsolete since the advent of the transurethral method of removing the prostate.

*Historical Data:* The consideration of the various instruments that have been devised for the transurethral relief of bladder-neck obstruction since their recognition as a pathological entity is very interesting. Guthrie, in 1830, devised his cutting knife concealed within metal catheters. Bottini, in 1870, introduced his cautery incisor. Wishard, in 1890, cauterized the prostate under direct vision through the perineum. Freudenbergl, in 1897, and Chetwood, in 1901, modified the Bottini instrument. Young, in 1908, presented his prostatic punch. Beer, in 1910, introduced fulguration as a means of destroying benign papilloma of the bladder and he, as well as Stevens and Bugbee, reported cases of bladder-neck obstruction treated by fulguration. Caulk, in 1920, substituted a cautery for the tubular knife in the Young punch making it possible to take a deeper bite of tissue and to control hemorrhage.

From this time on the popularity of transurethral prostatic resection was only made possible by the many improvements in the lens systems of the operating cystoscope or resectoscope and the development of high frequency machines. Stern, in 1926, presented his resectoscope which was later modified by Davis and they removed the prostatic obstruction by "guttering" through the tissue as it became engaged within the fenestrum. Bumpus at about the same time presented his modification of Braasch's

cystoscope which coagulated the tissue to be removed by multiple needle electrodes thereby rendering it ischemic before its excision. Collings, in 1926, presented the first cutting current apparatus in this country, called the "radiotherm." McCarthy, in 1931, modified his panendoscope with a bakelite non-conducting sheath and a new cautery loop. This instrument with its precise visualization of the prostatic urethra soon became the instrument of choice by most urologists. Other instruments which were presented include the Foley cystoscope with which he could remove most of the prostate by means of a fine wire electrode, Day's prostatic punch with needle electrodes and Kirwin's rotary resectoscope.

At the present time we can say that the success of transurethral prostatic resection is due to the fact that for the first time a method has been developed which gives the operator good vision, means of controlling hemorrhage perfectly and of removing accurately that portion or portions of the prostate causing obstruction. Good vision with the resectoscope is made possible by means of three lens systems: the foroblique, the indirect and the retroversion; so that the gland can be viewed from every possible angle and direction, thereby enabling one to accurately determine the obstructing portion of the gland. The most recent electrosurgical units, such as the Liebel-Flarsheim, McCarthy or Burdick, are operated by a foot pedal and consist of two separate currents: a powerful cutting current for the removal of prostatic tissue which is a vacuum tube appliance producing continuous or undamped oscillations of high frequency; and a coagulating current for the control of hemorrhage, which is a highly damped spark gap producing interrupted or damped oscillations of high frequency.

*Selections of Cases:* There has been considerable discussion as to which types of bladder-neck obstructions should be resected and which subjected to open operation. Some time ago the prevailing impression among urologists was to limit resections to bars and contractures of the bladder-neck, small middle-lobe enlargements and carcinoma of the prostate; but since then, as the experience of the operator increased, all types of bladder-neck obstructions were included by such men as Caulk, Davis, Alcock, Bumpus and Moore. They only excluded those cases in

which the instrument could not be introduced into the bladder. On the other hand such men as Young, Keyes, Lowsley and others still hold the conservative view of selecting cases for resection. My views on this subject are in accordance with the latter group.

Mention must be made of a very important group of cases to which prostatic resection has opened up an avenue of relief. I have reference to those old debilitated prostatitis with cardiac disease and poor renal function from whom surgical intervention has been withheld.

*Preoperative Preparation:* The same care and consideration must be given to patients to be resected as to those undergoing open operation. Infections should be eliminated if possible and renal function impairment is best treated by preliminary drainage instituted in most cases by indwelling urethral catheter or by suprapubic cystotomy in some cases. Cardiovascular diseases are found to be present in a large number of patients with bladder-neck obstruction and the proper medical treatment should be administered.

It has been our practice to give no preliminary treatment only to those patients with residual urine of not more than 200 c.c., in whom the renal function is normal and little or no infection exists. In all other cases an indwelling catheter is inserted and a vasectomy as a prophylaxis against epididymitis is performed. When the renal function and blood chemistry are within normal limits, infection is cleared and the cardiovascular impairment greatly improved, then is the patient ready for resection.

Suprapubic cystotomy, as a preliminary method of drainage, was done in over 15% of our cases. It was performed in severe bladder infections which could not be controlled by indwelling catheter, cases where the indwelling catheter produced marked local reactions and in conjunction with bladder diverticulæ and large vesical calculi. In one case of a recurrent carcinoma of the prostate with a spontaneous suprapubic fistula resection was successfully done and the fistula healed. In the series of cases reported from the Mayo Clinic, 12% of them were treated by preliminary suprapubic cystotomy.

*Anesthesia Employed:* The anesthetic used should be the least toxic to the patient and in



our experience spinal injection of 50 to 100 mg. of procaine and hypodermic injection of ephedrin for the usual drop of blood pressure has given us most satisfactory results. Caudal anesthesia has also been used with good results but any other form of anesthetic has rarely been employed.

*Tissue Removed:* The amount of tissue removed has little relation to the result obtained and practically no relation to the total size of the gland. The secret is in not seeing how much tissue can be taken out but rather to determine accurately exactly what part or parts are causing the obstruction and then removing that obstruction completely. In some prostates this requires the removal of only a small amount of tissue while in others it may mean a considerable amount. Thompson reports that in about 26% of cases the removal of less than 5 gms of tissue sufficed to eliminate residual urine, while in 10% of cases it was necessary to remove more than 25 gms of tissue. In one case 116 gms of tissue were removed. Alcock reports the average weight of prostatic tissue removed to be about 38 grams. Since we still select our cases to be resected and do not include those large prostatic hypertrophies, our average amount of tissue removed is about 10 gm.

*Postoperative Care:* The postoperative care in addition to the usual supportive care and forcing of fluids should include measures to avoid prolonged hemorrhage. Drainage by indwelling catheter for 72 hours is usually sufficient. Frequent bladder irrigations with warm boric or saline solutions will minimize formation of clots. Two-hour specimens of urine for the first 24 hours will reveal grossly the degree of hemorrhage. The catheter should be removed on the morning of the third day. If the patient cannot void or voids with difficulty, it is reinserted for 24 hours. The inability to void at this time is indicative of insufficient removal of prostatic tissue and reoperation is done. The presence of over 200 cc. of residual urine after continued hot Sitz baths is likewise an indication for reoperation. Second resections had to be done in 13.6% of cases at the Mayo clinic. It was not necessary to resect any of our patients a second time.

#### COMPLICATIONS:

(A) *Hemorrhage:* Immediate postoperative hemorrhage is generally of minor importance due

to the care that was exercised in the control of bleeding at the time of resection. Occasionally an overlooked bleeder, which cannot be controlled by urethral catheter, must be recoagulated. In rare cases of active hemorrhage with the bladder filled with clots which cannot be readily evacuated suprapubic cystotomy must be done as an emergency procedure.

Delayed postoperative hemorrhage appearing from 10 to 20 days after resection in most cases can be controlled by an indwelling catheter, or in some cases by the evacuation of the clots with a Bigelow pump and bladder irrigations of warm permanganate solutions. Suprapubic cystotomy for the control of hemorrhage has not been necessary in our cases. Caulk and Harris have shown by microscopic section that the pathologic changes observed following high frequency applications exhibit three distinct zones of damaged tissues: a zone of coagulation and complete cell destruction; a zone of fragmentation, hemorrhage, cell shrinkage and pronounced nuclear changes; and a relatively normal zone, which is most variable of the three and depends chiefly upon the time element. Specimens taken immediately or shortly after high frequency applications may exhibit no demonstrable histologic evidence of cell change in this zone, but after a few days may reveal definite necrosis. This deep heat effect is responsible for late sloughs and erosion of vessels causing secondary hemorrhages and infections.

(B) *Infection:* Although the lymph channels and blood vessels are sealed by coagulation incident to hemostasis, postoperative infection should be infrequent, yet cases of pyelonephritis, periurethral and prostatic abscess, periprostatic infection, phlebitis, urinary extravasation, retroperitoneal abscess and more commonly epididymitis have been reported.

(C) *Accidents:* Rupture of the bladder due to overdistention, perforation due to explosive gases have been reported as well as resection of the trigone, perforation of the urethra and bladder-neck.

(D) *Miscellaneous:* Other complications reported by various authors include stricture of urethra due to unnecessary trauma and incontinence resulting from resection of the external sphincter at time of operation.

*Mortality:* When first attempted, the mor-

tality following transurethral prostatic resection was reported to be as high as 25% in the first hundred cases, but as the result of experience of the individual operators, as many as three to four hundred successful resections have been done without a death. At the present time 3 to 5% of mortality is the usual result reported by urologists throughout the country. Caulk and Davis reported less than 1% mortality. Our mortality was slightly less than 3%. One patient died from urinary extravasation and two from pyelonephritis.

*Hospitalization:* Another advantage of transurethral prostatic resection is the greatly reduced period of postoperative illness and hospitalization which averages about 10 to 14 days while prostatectomy patients average about four to six weeks. The last private case done in this hospital remained six days.

As to the future of transurethral prostatic resection I fully agree with the recent views expressed by Alcock:

"I believe that in the end it is going to be found that the question as to whether resections or prostatectomies are going to be done will be determined not by the general surgeon or the urologic surgeon but by the home physician. He is the man who sees the ultimate and final result and he is the one who is going to determine which of those operations his patients are going to have."

Cases from the Urological service of Dr. L. L. Veseen are also included in this series.  
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#### SOME PRESENT DAY CONSIDERATIONS ON SYPHILIS

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There are three points relative to congenital syphilis which I would like to stress.

*Prevention:* If a questionnaire were sent to persons well informed on congenital syphilis and they were asked what single point they consider most important relative to this disease, I think the unanimous answer would be: its prevention. The good results of prevention of congenital syphilis by treatment of syphilitic pregnant women are generally agreed upon by those informed on this subject.

It is not necessary to dwell on the destructive effect of syphilis on the product of pregnancy. It is very well known that in the past it had been the greatest cause of spontaneous abortion after the fourth month, the most frequent cause of still-birth and neonatal death. The late J. W. Williams, Professor of Obstetrics at Johns Hopkins Medical School, said that it was responsible for more fetal death than dystochia, toxemia and prematurity combined and gave statistical evidence to prove this point.<sup>1</sup>

The literature of the past fifteen years has had scores of articles testifying to the influence of prenatal treatment in preventing congenital syphilis. I would like to report briefly one excellent recent article. This work by McKelvey and Turner,<sup>4</sup> was from the Johns Hopkins Medical School where, due to the influence of J. W. Williams,<sup>1, 2, 3</sup> so much research in prevention was carried on.

It included nearly one thousand cases and

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covered a period dating from 1914 to 1930. It was a very thorough piece of work and represented a co-operative project of the obstetrical department and the departments of pathology, syphilology, pediatrics and roentgenology.

The conclusions stressed the great value of treatment even late in pregnancy. If the mother is at term an injection or two of arsphenamine may materially improve the infant's chances of life. Treatment with arsphenamine in the last month of pregnancy altered the prognosis for the infant in a startling fashion. Of these 73% were normal. This is compared to 48.2% of normals in a group of untreated mothers, a difference of 25%. When it was possible to give 12 to 14 injections of arsphenamine, equal to at least 4 grams, congenital syphilis was not observed. If, however, it was possible to alternate courses of arsphenamine and one of the heavy metals, that is, mercury or preferably bismuth, even better results were obtained. This would require starting treatment by the fifth month of pregnancy. Of course, treatment through pregnancy was considered still better and in known syphilitic women treatment before pregnancy and throughout was advised if active syphilis or a positive Wassermann test was present.

Failures were due to insufficient treatment, lack of continuous treatment, or failure to take treatment during the last trimester of pregnancy. Inunctions of mercury are not as efficacious as arsphenamine and the administration of several doses of arsphenamine just before delivery is particularly important.

At the Children's Memorial Hospital we do not treat adults but we have had pregnant syphilitic mothers who have brought syphilitic children to the clinic in more than one hundred cases. We have been able to get these mothers to take treatment and have had normal babies in all but two cases. These women went only a few times for treatment, one of them five times at irregular intervals. In both of these failures the child's lues was so attenuated that it could not be detected by physical examination and the x-rays of the long bones were negative. A slightly positive serologic report in each case, however, made us feel that a very mild syphilitic infection was present.

Syphilis is uncommon in private practice. In the past fourteen years, however, I have had

three cases of congenital syphilis in the babies of women who had been cared for by their physician during almost the entire period of pregnancy. The syphilitic infection of these mothers had not been suspected, although upon examination a few weeks after delivery each of the mothers had positive serologic tests. In another infant the presence of syphilis was learned by the physician who delivered the mother, through a positive cord blood test which is taken routinely in the hospital where the baby was born.

The value of treatment to prevent congenital syphilis is well established and the importance of its early administration is clear. In dealing with a disease as latent and illusive as syphilis it would seem that a routine serologic test for syphilis is indicated. There should be no objection to this on the part of the patient as it is done along with a searching history, and a careful physical examination, blood pressure determination and other tests. If explanation is required it need only be said that this is a part of the routine procedure of the first visit.

*Optimism:* Before the second decade of the present century the treatment for syphilis was much more limited and less effective than it is today and consequently the outlook was always doubtful. Even with the best treatment the specter of later tragedy haunted the scene. The patient of that day was treated with mercury, and iodides were used where indicated, until all clinical signs were gone. Then more mercury was given. Later from time to time still more treatment was given. Serologic tests and spinal fluid tests for syphilis as a means of checking results were then unknown. Lumbar puncture was perfected by Quinke in 1885 and was not commonly done until early in the present century.

Beginning with 1903, as remarked by Pusey<sup>5</sup> "one important discovery in syphilology followed another with a rapidity that is without parallel in any other disease. In 1903 Metchnikoff and Roux demonstrated that syphilis was inoculable in apes.

"In 1905 Schaudinn and Hoffmann ended the long search for the organism of syphilis by the discovery of the *spirochaeta pallida*.

"In 1906-7 Wassermann, Neisser and Bruck applied the serum complement reaction of Bordet

and Gengou to the diagnosis of syphilis and developed as a practical test for syphilis what is now known as the Wassermann reaction.

"In 1911 Noguchi succeeded in cultivating in vitro the *spirochaeta pallida* and completed proof of the specificity of this organism by reproducing the disease in animals from his culture.

"In the meanwhile there had been the development of arsenical chemotherapy of syphilis begun by Uhlenhuth and carried forward so amazingly by Ehrlich with the introduction in 1909 and 1910 of salvarsan."

In 1921 Sazarac and Leviditi in Paris introduced bismuth therapy.

A few years later successful arsenical treatment by mouth administration was practiced using a drug best known in this country as stovarsol. It is called acetarsone in New and Non-Official Remedies. This drug has an important place in the treatment of infants and in children it may be used alone or in resistant cases to alternate with courses of bismuth injections. At the Children's Memorial Hospital we have used it in almost three hundred cases and we feel that it is a drug of the greatest value.

A new arsenical called Mapharsen has recently come into use which promises to displace all previous injected ones because of its lesser toxicity and greater efficiency.

With the development of this rich armamentarium of later drugs, probably all of them superior to mercury, and the ability to check their effect on the blood and spinal fluid, our views as to the outcome of treatment must be changed. The terrible specter of later doom, which the profession and the laity still too often associate with syphilitic infection, must be cast out. It is a tradition of a by-gone period.

It is the duty of the physician to imbue the patient with a feeling of optimism when educating him concerning his disease. Of course, one should not minimize the necessity for continuous, thorough and adequate modern treatment carried on over a sufficiently long period. There is no question among the best authorities today that patients adequately treated before serious degenerative changes have taken place are clinically cured in a very high percentage of cases; Stokes<sup>6</sup> says 80 to 85%.

*Physicians Should Be Syphilis Minded:* It is not at all uncommon to see patients who have been treated over months and even years without

the physician knowing that he was dealing with syphilis. In one of our patients the little girl was treated by an oculist for eighteen months without his making a diagnosis of syphilis. She had an advanced interstitial keratitis with adhesions to the lens, and had had for many months a dirty yellowish membrane in the pharynx and nasopharynx. The left pillar and left tonsil, uvula, and part of the soft palate were destroyed. Following two injections of sulpharsphenamine the membrane entirely disappeared. A great many similar cases could be mentioned in all ages through infancy and childhood. The outlook on syphilis as expressed by one postgraduate who had practised many years is unfortunate. He said "this is a very interesting disease but we don't have any of it where I came from."

The failure to be wary of syphilis is not confined to any type of practitioner. Recently I learned of a patient who was being treated by a department head for deafness over a period of several months. This otologist wrote on the chart "Wassermann not necessary." He was quite chagrined when his patient in the eye department was found to have a positive Wassermann.

In another case a well known gastroenterologist had managed a patient with duodenal ulcer without result. The patient sought another gastroenterologist who had a serologic test made for syphilis which was positive. Upon treating the ulcer and the syphilitic infection the ulcer promptly healed.

*Summary:* I have attempted to stress three points which to me seem very important in our fight against syphilis today.

First: The efficacy of preventing congenital syphilis by treatment of the mother through pregnancy.

Second: The duty we owe to our patients to inform them of the nature of their malady and encourage them to expect a favorable result if they are co-operative and no serious degeneration is already present.

Third: The importance of knowing syphilis and being on the watch for it.

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## DUODENITIS WITH ASSOCIATED ACRODYNIA

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Duodenitis was differentiated from duodenal ulcer by Judd<sup>1</sup> in 1921. It is characterized by hyperemia and stippling of the serosa, but the wall is not indurated, and on palpation the duodenum is undistinguishable from one that is normal. On examination of the mucosa diffuse or local inflammation and at times one or more simple erosions may be found. Kirklin<sup>2</sup> in 1929 reported forty five cases of duodenitis found at operation in which the diagnosis had not been made either clinically or roentgenologically. In 1934 he<sup>3</sup> proposed certain roentgenologic criteria essential for a diagnosis of duodenitis. First in importance was abnormally increased irritability of the duodenum, and, second, a mucosal pattern which was coarsely and irregularly reticular and appeared as clear islands lying in a denser network. The stomach was small and hypertonic with active peristalsis. Gillespie and Gianturco<sup>4</sup> in 1935 reported a case of duodenitis in a 13 year old girl. They were not impressed by any symptoms which might be characteristic of the duodenitis syndrome, and the symptoms generally were those leading to a clinical diagnosis of peptic ulcer. Pain and constipation were the cardinal complaints. They concluded the history is rarely typical and roentgen studies of the stomach and duodenum are justified in cases of obscure gastric discomfort.

Wellbrock<sup>5</sup> from histo-pathologic studies concluded there is a relationship between duodenitis and duodenal ulcer, and Konjetzny<sup>6</sup> thought duodenitis was an antecedent of duodenal ulcer. It is not impossible that the same factors concerned in the etiology of duodenal ulcer play a similar role in duodenitis.

Duodenitis associated with acrodynia, I believe, has never heretofore been described. The autopsy reports on patients with acrodynia have

not mentioned a duodenal lesion. In the series of cases reported by Wood and Cole<sup>7</sup> little except bronchopneumonia was found and nothing characteristic of the disease was described. Thursfield and Patterson's<sup>8</sup> case showed only acute intussusception and Davis's<sup>9</sup> case fatty degeneration of the liver. Neither Warthin<sup>10</sup> nor Kernohan and Kennedy<sup>11</sup> mentioned lesions of the gastrointestinal tract in their necropsy reports on cases of acrodynia. The autopsy reports would, however, agree that there is a degenerative process affecting the central and peripheral nervous systems.

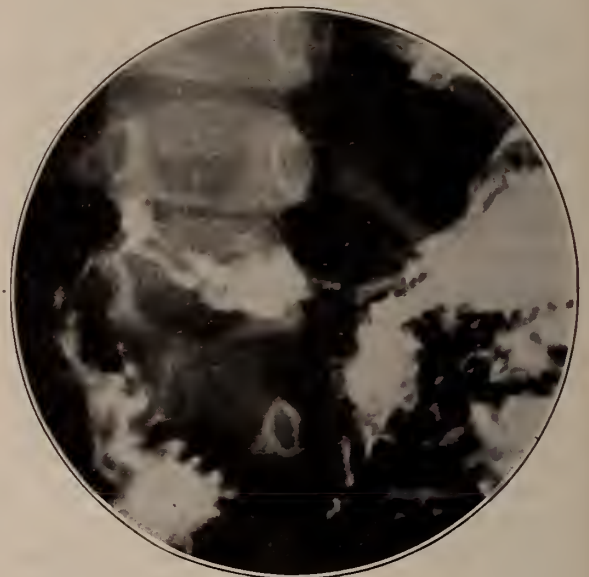


Figure 1 shows the spastic deformity and irregularity of the duodenal bulb.

Weston<sup>12</sup> applied the term acrodynia to a group of cases reviewed by Bilderback.<sup>13</sup> Swift<sup>14</sup> suggested the term "erythredema" for the diseases and Feer<sup>15</sup> decided from the clinical aspects that it was essentially a neurosis of the vegetative nervous system.

The reported cases have for the most part occurred in children from a few months to 7 years of age. Rodda<sup>16</sup> has analyzed and grouped the symptoms conveniently under 1. Those general in nature, as anorexia, loss of weight, weakness. 2. Those referable to the nervous system as hyperirritability, sleeplessness, paresthesia, anesthesia, loss of reflexes and photophobia. 3. Dermatologic symptoms as hyperhidrosis, miliaria, desquamations, erythema, swelling, cyanosis, alopecia and ulceration of the gums.

The etiology of the disease is not known. Infections, food deficiency, arsenical intoxications

and neurosis of the vegetative nervous system have been suggested as possible factors. The preponderance of opinion regarding etiology at present favors infection although the evidence brought forth is far from conclusive. The prognosis is usually good. Recovery may not be complete before several weeks or months, but the patients seldom succumb. If death does occur, evidence of intercurrent infection, chiefly bronchopneumonia, is usually found.

Reported in this paper is a case of duodenitis in a small child. The diagnosis of duodenitis was made by the criteria of Kirklin. There were several unusual features other than the duodenitis. The child gave a history of allergic manifestations following the ingestion of milk and this was well demonstrated during the treatment of the duodenal lesion. Also shortly after development of duodenitis symptoms the typical acro-dynia occurred. There has apparently been a complete recovery from both conditions. No relapse of the acrodynia has occurred.

Case Report: G. Q., a 3½ year old female, was first seen September 23, 1935, because of "stomach" trouble.

The patient was the youngest of two children. The father had had gastrointestinal trouble for years, and the paternal grandmother had been told she had peptic ulcer. The only incidence of allergy in the family history was a paternal uncle who suffered recurrent attacks of urticaria.

The patient had been born at term; labor and delivery were normal and she weighed 8 pounds at birth. Development was normal and she had escaped all of the contagious diseases of childhood.

The parents had known this child was sensitive to milk and egg. She was breast fed two months and then put on a cow's milk formula. At the age of 10 months she was given whole milk at which time the sensitivity was first noted. A little milk or egg caused no difficulty but large amounts of either caused a profuse eruption on her scalp, face and body. When egg and milk were taken away the skin would immediately clear. This had been repeated many times at home.

Three weeks prior to her admission to the clinic she had first complained of abdominal pain about the navel. This was chiefly at night; it would awake her from sound sleep and make her cry three or four times each night. There was some discomfort during the day with no particular relation to meals. No vomiting or melena had occurred although belching was frequent. This abdominal distress was at times relieved by soda but food had never been given for the pain. Her bowels were constipated for the week prior to admission; before, they had always been regular. She had refused to stand up and walk for a week. Recently profuse sweating had been noted.

Her height was 37 inches (92.5 cm.) and her weight 29 pounds (13.1 kg.). Blood pressure was 120/80, pulse

108 and rectal temperature 99.2°. She was a slender, pale, well-developed child and was extremely irritable. At the first examination there were some small scattered papules on the trunk and face. The tonsils were medium size, cryptic and infected. The hands and feet were pink and cold. There was pronounced hypotonia. The physical examination was otherwise negative.

The urine was negative. On admission the hemoglobin was 90%, erythrocytes 4,880,000 and leukocytes 5,700. The differential count showed 40% lymphocytes, 3% monocytes, 54% neutrophils, and 2% eosinophils. The coagulation times was 3½ minutes, the bleeding time 3 minutes. The blood Kahn and Wassermann were negative and repeated examinations of the stool were negative for ova, parasites, and blood. Mantoux test with 1/10 mg. of old tuberculin was negative. Gastric analysis showed total acidity 29°, free HCl 14%. Fluoroscopic and x-ray studies of the stomach and duodenum showed duodenitis. X-ray of the chest was negative. Skin tests (scratch method) for milk, egg white, egg yolk and wheat flour were negative. Examination of the fundi by Dr. G. L. Porter was negative.

The girl was put on milk and cream every hour with doses of a preparation containing diastase, calcium carbonate, magnesium carbonate and bismuth subcarbonate every 2 hours. Within 36 hours she developed on her forehead, trunk and extremities a diffuse, red, macular eruption with considerable itchings. The parents said the eruption was identical to that which she had had previously from milk.

The hourly feedings of milk and cream were discontinued and she was given 3 bland meals daily and 3 in-between feedings of custard. The previously used alkaline medication was given after each of the six feedings and 2 teaspoons of mucin were given with each of the three regular meals. Doses of elixir phenobarbital with small doses of tincture of belladonna were given three times daily.

The gastrointestinal complaints were less marked within a few days and the child began to sleep better at night. Two or three days after the institution of treatment for the duodenitis there was more marked pink discoloration of the hands and feet, and they were puffy and sodden. The child perspired profusely, and there was marked anorexia and irritability. On October 9, 1935, her nose was pink, the hands and feet were pink and puffy, and the skin was desquamating in these areas, particularly the fingers and toes. There was excruciating pain in the hands and feet. She was extremely irritable and hypnotic. Insomnia and anorexia were marked. The blood pressure was 135/95. There was a maculopapular eruption on her chest, abdomen, back and buttocks, and she tore at her hands and feet and the lesions on her body. She was quite prostrated and slight photophobia was present. Ultra violet light, cod liver oil and yeast were started. Calomine lotion with tar was used on the hands and feet. By this time there was rarely a complaint of abdominal discomfort. On October 30, 1935, the parents reported she was "75%" improved. She was eating better, and the eruption was disappearing from her body. The profuse perspiration had ceased and there was no photophobia.



The hands and feet were still pink and desquamating and caused her considerable discomfort. The blood pressure that day was 135/80. On November 5, 1935, roentgenologic studies of the stomach and duodenum were negative. On November 16 the hands and feet were still pink and the feet still desquamating. She was feeling quite well and was bright, active and playful. On December 9 the blood pressure was 95/60. There was no discoloration of the hands and feet or hyperhidrosis. She was still sleeping and eating rather poorly. There had been no abdominal complaints for several weeks. Figure 1 shows the spastic deformity and irregularity of the duodenal bulb.

*Comment.* From the clinical history it was quite definitely established that the symptoms of duodenitis preceded the earliest signs of acrodynia several weeks. However, at the time the patient was first seen the pink hands and feet, hyperhidrosis, hypotonia, slight skin eruption and hypertension were noted. It would appear that in this case some of the factors concerned in the etiology of duodenitis might be the same as those in acrodynia. It seems not unlikely that etiological factors operating in peptic ulcer are the same as those in duodenitis. Many of the various theories of etiology of duodenal inflammation can be excluded in the case of this child. However, the reported patient was definitely sensitive to milk. Wellbrock<sup>17</sup> and Lipschutz<sup>18</sup> discussed the part allergic reactions may play in inflammations of the duodenum. Focal infection has been considered an etiological factor in both duodenal inflammatory lesions and acrodynia. Rodda advised tonsillectomy as an almost routine procedure in acrodynia. The patient in the reported case had chronically infected and enlarged tonsils. The duodenitis and acrodynia responded so well to medical treatment that tonsillectomy has not been done. There was not a history of food deficiency or insufficiency in the reported case. It is with hesitation that the possible interrelationship or common etiological factors of duodenitis and acrodynia in this case are postulated for the evidence is insufficient.

Duodenitis occurring in childhood is a rarely diagnosed condition, and the symptoms generally are those leading to a diagnosis of peptic ulcer. It is probable that inflammatory lesions of the duodenum occur more commonly in childhood than is generally supposed. The association of acrodynia with duodenitis is an unusual observation and offers opportunity for speculation concerning a common etiology in this particular case.

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## PRIMARY CARCINOMA OF THE JEJUNUM

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A review of the available literature indicates that primary carcinoma of the jejunum is of such rare occurrence as to justify reporting our case. Rankin and Mayo report a group of fifty-five cases of small bowel carcinoma collected from a series of 8,932 cases of gastrointestinal tract carcinoma. Only twenty-one of the fifty-five cases reported occurred in the jejunum. Kordenat, Malerich, Bolloy, Rankin and some others have also reported individual cases.

Carcinoma of the jejunum may occur as a primary localized annular growth which produces a varying degree of obstruction at the site of the lesion or it may occur as a degenerative change at the site of a polyp. An analysis of the cases previously reported in the literature shows a wide variation in the age incidence, the youngest patient being thirty-seven years old and the

oldest seventy-five; the average age was about forty-eight years. The majority of the cases occurred in females, although in the Mayo statistics this did not hold true. The onset is usually gradual and the symptoms are essentially those of a chronic intestinal obstruction with vomiting, loss of weight, etc.

Rankin and Mayo state that the signs and symptoms vary in duration from two to three months to five years or more with the chief symptoms those of an intermittent intestinal obstruction, and secondary anemia. Increasingly obstinate constipation is the rule. Sometimes there are alternating periods of diarrhea. On inspection visible and reverse peristalsis, tenderness and rigidity, and a "palpable, tender mass that slips away from the fingers" are significant features. When the obstruction is quite marked, borborygmus is a very characteristic sign. Examination of the stool for blood is important but the presence of blood in the stools is not a constant finding. The radiographic examination is very important, first, as a means for ruling out other bowel pathology and, second, as a means of diagnosing the presence of an obstruction. The obstruction with the characteristic findings of a "mass which is movable and slips away from the fingers" at the site of obstruction is, in our opinion, the most significant finding and from these two findings a diagnosis of small bowel neoplasm may be suspected.

The case we wish to report occurred in a woman sixty-four years of age, white, and married. The essential complaints of the patient on admission were pain in the abdomen of five or six months' duration, vomiting of about the same duration, and constipation which had been present for years but which was becoming progressively worse.

The patient stated that for many years she had been suffering from constipation and that during the past few weeks especially this constipation had become very marked and was not relieved by any of the medicaments which the patient had used successfully in the past. At no time had there been any diarrhea and at no time had the patient noticed any blood in her stools nor have the stools been black at any time.

The pain in the abdomen had been getting progressively worse during the past five or six

months and was located in the epigastrium, extending from right to left, and of a severe, cramp-like character. The pain was present all of the time and was not particularly related to the taking of food. It was definitely relieved by the passage of flatus, by a bowel movement or by vomiting. The patient stated that at the height of her pain she felt that there was a "stone" in her abdomen and that there was much "noise" associated with the pain.

Vomiting had been experienced during the past five or six months and at first occurred chiefly after eating, about once or twice a week. During the past few weeks the vomiting had become very much more frequent and more pronounced and for the last few days the patient had been vomiting almost everything she took by mouth, including even a drink of water. The vomitus was usually green and tasted bitter and sour. During the past week or two she had noted food particles, taken many hours before, returning in the vomitus.

There had been about a fifteen or twenty pound loss of weight during the past three or four weeks, and the patient also called attention to the presence of loud gurgling "noises" in the abdomen practically all of the time.

An inventory of the various systems brought out no particular points of importance. The patient stated she was moderately nervous and easily excited but her reflexes were all normal and there was nothing to indicate any central nervous system involvement. There was no precordial pain, no nose bleed, and no ankle edema. There was some tachycardia and palpitation on excitement and some dyspnea on exertion. There were no complaints referable to the respiratory system and the genitourinary system was apparently normal also. The patient weighed ninety pounds at the time of admission to the hospital.

Aside from childhood diseases the patient had always been in good health. She had had no surgical condition and had never suffered any accidents. She had been married for forty-six years; one child was living and well at the age of 31; husband living and well at 72. Menses were established at the age of sixteen, regular every four weeks, duration one week, no dysmenorrhea; climacteric at fifty-two with no bleeding since then.

The patient's mother died at age of thirty-



six in childbirth; her father at the age of sixty-six of pneumonia. One sister is living and well at seventy-two. There is no family history of carcinoma, tuberculosis, diabetes or other chronic disease.

Physical examination of this patient revealed a markedly emaciated elderly female about sixty years of age, lying quietly in bed. Regional examination showed no pathology of the head. The eye reflexes were all normal but the eyeballs were sunken markedly. There was no ear pathology; the nose appeared normal and the neck presented no palpable glands or other pathology. The mouth was quite normal also. Examination of the chest showed some evidence of a pulmonary emphysema with a hyperresonant note on percussion; no râles and no evidence of any lung disturbance of clinical importance. The heart was enlarged a little to the left, the heart sounds were distant; no murmurs were heard; rate was 84, rhythm regular; blood pressure 152/86. The abdomen was distended. Enormous peristaltic waves were visible. A loop of distended small bowel was visible through the abdominal wall and just to the left of the umbilicus a mass was palpable. This mass was not very tender and "seemed to slip away from the examining finger." The liver, kidneys and spleen were not palpable. There was no rectus rigidity. Rectal examination showed a normal sphincter tone, no palpable masses, and there was no blood on the examining finger. Examination of the extremities was negative and all of the reflexes were normal.

Examination of the blood showed a hemoglobin of 82%, erythrocytes 4,680,000 and leukocytes 9,600; coagulation time  $11\frac{1}{2}$  minutes. Three successive examinations of the stool for blood were negative.

The x-ray study of this patient was begun with a plain film of the abdomen. The typical striations of the valvulae conniventes and the characteristic gaseous distention of the proximal loop of jejunum were noted as indicative of a high small bowel obstruction. The site of the obstruction corresponded to a palpable, tender, somewhat movable mass which seemed to slip away from the examining fingers. At this point a diagnosis of a high jejunal obstruction due to a neoplastic mass was made. Our opinion at this stage of the examination was that this was a metastatic mass, and the patient was given

some barium in an attempt to discover a primary neoplasm elsewhere in the gastrointestinal tract. There was no evidence of any pathology in the chest. The esophagus and stomach were normal, except that the dilatation of the jejunal loop already noted also involved the duodenum and stomach, and the patient presented a marked degree of cardio-esophageal relaxation with regurgitation and vomiting of some of the meal (Fig. 1). Examination of the bowel distal to the obstruction was also negative and no primary lesion could be found elsewhere.



Figure 1. Appearance of x-ray film after administration of barium solution. Note typical distention of proximal loop of small bowel, the valvulae conniventes, dilatation of the duodenum, and retention in the stomach. The site of the obstruction corresponded to the site of a palpable mass which was freely movable.

During the x-ray study, vigorous peristalsis could be noted through the abdominal wall and there was marked borborygmus. Films made at intervals were blurred because of this active peristalsis. With the data now at hand we felt that the palpable mass at the site of obstruction was probably a primary neoplasm and a pre-operative diagnosis of a suspected primary carcinoma of the jejunum was made.

Exploratory laparotomy revealed the proximal loop of jejunum greatly distended and some-



Figure 2. The tumor mass after resection showing the annular, obstructive nature of the mass, sharply delimited, with normal mucosa on either side of the neoplasm.



Figure 3. Microscopic appearance of the mass which was resected. The appearance is that of an adenocarcinoma.

what thick. The duodenum was also dilated greatly. In the left lower quadrant at the distal end of the obstructed loop of jejunum a hard, sharply limited, movable mass was found, annular in type and producing almost a complete obstruction. The inguinal lymph glands were apparently not involved and there were no visible metastases to the liver. The mass was resected and on gross section presented the typical appearance of a hard, annular, obstructive carcinoma (Fig. 2). Microscopic section showed the characteristic appearance of an adenocarcinoma (Fig. 3).

*Summary.* A case of primary carcinoma of the proximal jejunum is reported in a woman sixty-four years of age. The clinical manifestations were those of a high small bowel obstruction, but the presence of a mass at the site of the obstruction, the characteristic "slipping" of this mass from the examining finger as described by Rankin and Mayo, and the x-ray findings led to a pre-operative diagnosis in this case. Resection of the mass and microscopical section confirmed the diagnosis.

## A CRITICAL STUDY OF MORTALITY IN APPENDICITIS

A Review of Four Hundred Fifty-Six Cases  
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The mortality of appendicitis still remains high, despite present advances in laboratory technique, accumulated experience and perfection of operative procedure. However, the mortality varies considerably depending chiefly on the stage of the disease in which operation is performed and on the mode of management. The purpose of this paper is to analyze the course of 456 cases, to elucidate the basic truth of the above statement, attention being directed particularly to the results of the Oschner treatment and of appendicostomy in patients with a ruptured appendix.

During the last two years, the patients having appendicitis admitted to St. Margaret's Hospital have been carefully studied. In many of these cases, besides the initial blood count, initial and subsequent daily Schilling hemograms have been made by the author. At times, espe-

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cially in those female patients in whom the diagnosis was in doubt, sedimentation tests were also performed.

The 456 patients studied constitute a series of consecutive cases in which appendectomy was performed by members of the staff of St. Margaret's Hospital from January 1, 1933, to February 28, 1935.

During this period, more than 500 appendectomies were performed on the surgical service. After a careful review of the individual charts, 46 interval cases, in which appendectomy was performed during the course of a pelvic operation, were eliminated.

The remaining 456 cases fall into five groups: 1. A group diagnosed as subacute appendicitis with confused clinical and laboratory findings, but definitely determined by gross and microscopical pathology. 2. A group diagnosed as gangrenous appendicitis (non-ruptured), including acute interstitial, ulcerative, and gangrenous appendicitis. 3. An abscess group in which the abscess was definitely localized and completely walled off from the peritoneal cavity by intestine or omentum. 4. A group having a local non-diffuse peritonitis. 5. Acute appendicitis with diffuse peritonitis.

Under classification the mortality is shown in the following:

TABLE 1. DATA FOR 1933

	Cases	Deaths	Mortality Per cent
Sub-acute appendicitis .....	52	0	0
Acute gangrenous appendicitis.....	128	3	2.34
Appendiceal abscess .....	4	0	0
Acute local peritonitis with rupture.	1	0	0
Acute diffuse peritonitis with rupture	21	5	23.72
Total .....	207	8	3.86

TABLE 2. DATA FOR 1934 AND PART OF 1935

	Cases	Deaths	Mortality Per cent
Sub-acute appendicitis .....	63	1	1.42
Acute gangrenous appendicitis.....	136	0	0
Appendiceal abscess .....	8	0	0
Acute local peritonitis .....	9	1	11.10
Acute diffuse peritonitis with rupture	33	5	15.15
Total .....	249	7	2.81

As Tables 1 and 2 show, there was a definite decrease in mortality during the second half of the series. The reduction in mortality occurred in the gangrenous and diffuse peritonitis groups. The possible causative factors were: gradual improvement in operative technique and better pre- and postoperative preparation of the patient in diffuse peritonitis and individualization of cases.

Time factor. As Stanton<sup>1</sup>, Love<sup>2</sup> and others have stated, there exists a definite relationship

between the operative mortality of acute appendicitis and the duration of the acute inflammatory process prior to operation. In acute appendicitis, if operation is done during the first twenty-four hours, the mortality in experienced hands, is definitely lower than when performed during the first half of the second day of the disease. After this period the mortality rises sharply from the second to third day. The insufficient number of cases in this series operated on during the fourth and fifth day permits no definite statement as to the gravity of surgical intervention. However, fourth and fifth day operations are particularly dangerous as Love and Stanton stated. In such cases operative intervention on third, fourth or fifth day naturally tends to transform a local infection into a generalized peritonitis.

The later part of this report will show the effects of a complete change from the conventional Ochsner treatment in the surgical management of those cases in which there is general peritonitis exists with no attempt on the part of nature to localize the infection. The change referred to is the use of appendicostomy. Appendicostomy was tried by one member of this staff in every case in which a diffuse peritonitis complicated a ruptured appendix.

*Mortality.* The single death in the sub-acute group occurred on the seventh post-operative day and was due to pulmonary embolism. The corrected mortality was zero. There were three cases of pulmonary embolism during the period of two years and two months in the surgical service including this case. Two deaths in the acute gangrenous group were due to general peritonitis, and the other was caused by post-operative pneumonia. The mortality in this group was 1.13% for the two years.

Examination of Tables 1 and 2 show, in the second half of the present series, only one death in the local peritonitis group with a mortality of 11%. This case was operated on during the second day of illness and succumbed 24 hours later to streptococcus septicemia. In twelve cases appendiceal abscess, there were no deaths. The majority of the operations were performed on the third, fourth and fifth day. Only two cases were operated on the seventh and tenth days respectively. In seven cases the appendices were not removed and simple drainage was established.

There were 54 cases of acutely ruptured appendices with diffuse peritonitis. Among the thirteen operators one of them by routine employment of appendicostomy, brought the mortality rate down considerably lower than hitherto reported in the literature. In his series of 75 cases reported in 1934, the mortality was 1.4%.<sup>3</sup> In 1933, 1934 and the early part of 1935 sixteen cases of ruptured appendix were treated by appendicostomy and cecostomy by other members

spectively. Jordan<sup>6</sup> studied a series of 587 cases in 1932. Of this number, 39, or 5.11% ended fatally.

According to the figures in recent literature, the mortality in acute appendicitis complicated by diffuse peritonitis is according to Tasche and Spano,<sup>7</sup> 38%, and Anheim and Neuhoﬀ,<sup>8</sup> 16-21%: and Schaer, 56%, and Eliason and Ferguson,<sup>5</sup> 75%.

*Post-operative abdominal distention in diffuse*

TABLE 3. MORTALITY OF OPERATION ACCORDING TO PERIOD SINCE ONSET.

Day	I Acute Gangrenous.			II Local Peritonitis.			III Diffuse Peritonitis.			IV Abscess.			Total.	
	R.	D.	M. Per cent.	R.	D.	M. Per cent.	R.	D.	M. Per cent.	R.	D.	M. Per cent.	R.	D.
1	167.	0.	.00	1.	0.	.00	7.	1.	14.2				175.	1.
2	74.	2.	2.6	8.	1.	12.50	24.	7.	29.1				106.	10.
3	18.	1.	5.3				8.	2.	25.0	1.	0.	0.	27.	3.
4	2.	0.	0.0				4.	0.	0.0	3.	0.	0.	9.	0.
5										3.	0.	0.	3.	0.
6										3.	0.	0.	3.	0.
7							1.	0.	0.0	1.	0.	0.	2.	0.
8														
9														
10										1.	0.	0.	1.	0.
Total	261.	3.	1.42	9.	1.	11.0	44.	10.	18.7	12.	0.	0.	326.	14.

R.=Recovered. D.=Died. M.=Mortality.

TABLE 4. CASES DIED IN RUPTURED APPENDIX WITH DIFFUSE PERITONITIS.

No.	Sex	Age	Types of operation.	Period since onset.	Time elapsed after operation.	General condition before operation.
45	m	66	Appendicostomy.	46 hours	10 days	Poor.
46	m	60	Appendix not removed. Drained.	40 hours	2 days	Very poor.
47	m	53	Appendectomy with drainage.	21 hours	4 days	Fair.
48	m	66	Appendectomy with drainage.	42 hours	5 days	Poor.
49	m	3	Appendectomy with drainage.	52 hours	2 days	Very poor.
50	f	35	Appendectomy with drainage.	50 hours	2 days	Very poor.
51	m	44	Appendicostomy.	48 hours	3 days	Fair.
52	m	49	Appendectomy with drainage.	44 hours	2 days	Fair.
53	m	61	Appendectomy with drainage.	48 hours	27 hours	Pt. had signs and symptoms of intestinal obstruction. Very poor condition.
54	f	7	Appendectomy with drainage.	48 hours	2 days	Extremely poor condition.

m=male. f=female.

of the surgical department with a mortality of 12.5% ; the remainder of the 54 cases were treated by the commonly employed method, namely, drainage with or without appendicostomy with a death rate of 21%. In reviewing the mortality from appendicitis (all causes), Ryan<sup>4</sup> found the following: Suermondt 7.8% ; Hoffman 6.8% ; Marsch 4.5% ; Colp 5.2% in 2,841 cases operated on at the Mt. Sinai Hospital, New York. In 1928, Eliason and Ferguson<sup>5</sup> reported 675 cases with a mortality of 5.3%. Arnheim and Neuhoﬀ reported 8.2% and 2.8% during the three year periods from 1928 to 1930 and from 1931 to 1933 re-

peritonitis. Abdominal distention in generalized peritonitis is too familiar to the abdominal surgeon to mention here, but the marked absence of distention in those cases which have been treated by cecostomy or appendicostomy deserves mention. In a series of 16 cases there were only two in which a slight amount of abdominal distention occurred (12.5%) : while in cases treated by ordinary methods distention occurred in 27 out of 38 cases (70%). Less abdominal distention in those treated with appendicostomy or cecostomy, is the direct result of drainage of cecum and ascending colon and the contents of the small bowel through the drainage



tube. As Quain and Waldschmidt,<sup>9</sup> Gatch,<sup>10</sup> Jones<sup>3</sup> and others have shown the best treatment for distended bowel or advanced ileus is to relieve tension and thereby early secure a normal blood flow to the intestinal wall actually enhancing the protective measures instituted by nature.

Table 5 shows the complete list of the cases who recovered from diffuse peritonitis after operative treatment.

*Analysis of Table 5.* There were ten deaths in 54 cases of acutely ruptured appendix with diffuse peritonitis. The age incidence in general was in the two extremes of life. Four cases were over 60, one case three, and another seven. Eight of the fatal cases were operated on within 48 hours after onset. The general condition of the patients before operation was very poor.

Case 53 entered the hospital with marked signs and symptoms of acute intestinal obstruction. The general condition was extremely poor. Due to the poor pre-operative condition, the surgeon had to wait several hours before he made a simple incision and drainage. The condition of the patient did not justify further operative procedures. The patient died 27 hours after operation. I included this case in the table for sake of completeness of the statistics. The mere incision and drainage of peritoneum, did not influence the clinical course.

Case 54 entered the hospital with a temperature of 104.4 degrees F., pulse 180 and respiration 32. The initial blood picture was a total white count 17,700 with polymorphonuclear leukocytes 95%. The appendix was ruptured and smear showed streptococci. The patient died within forty-eight hours after operation.

TABLE 5

Comparison of mortality and length of stay in hospital between appendicostomy and other surgical procedures in ruptured appendix with diffuse peritonitis.

	Appendicostomy (Cecostomy included.)	Other types of operation.
Cases .....	16	38
Recovered .....	14	30
Deaths .....	2	8
Average No. of days in hospital.....	23.70	24
Mortality per cent.....	12.50	21

"Other surgical procedures" mean that patients with generalized peritonitis were treated by merely opening the abdomen and inserting drains or removing the appendix and establishing drainage.

*Diagnosis.* In regard to diagnosis the author desires only to mention his experience with Schilling count and sedimentation tests. Cat-

tanewo,<sup>11</sup> Grodinsky<sup>6</sup> and Lesser and Goldberger<sup>11</sup> have reported that the sedimentation rate in cases of acute appendicitis per se is uniformly normal while in all other abdominal conditions simulating the acute abdomen it is abnormal. By determining the sedimentation rate, the author believes that numerous unnecessary laparatomies have been avoided. I found it an extremely valuable adjunct to the blood picture and clinical findings. The same was found to be true of the value of the Schilling differential count in arriving at a diagnosis.

I agree with Sours,<sup>12</sup> Yaguda<sup>13</sup> and others that a Schilling's differential count is of definite value in the diagnosis of acute appendicitis. Operability of the patient and the extent of the lesion can be determined much more accurately than with the simple white and differential count. However, the value of Schilling hemogram has not been fully appreciated by many surgeons. The statements which has recently been made by clinical pathologists, on the striking lack of understanding of the physiology and pathology of the blood by clinicians, should arouse our interest. Eisenberg<sup>14</sup> aptly said "there will always be a group of clinicians who will refuse to accept newer facts discovered by modern hematology, and who will continue missing, now and then, an occasional diagnosis, taking out an inoffensive anemic appendix which had never done anyone any harm, or leaving in the so-called silent suppurative appendices, or making sanguine prognoses only to find themselves confronted with the sudden death of that particular patient who had been doing so well right along."

*Pre-operative treatment.* Most of the acute appendicitis cases entering the hospital within 40 hours with no signs or symptoms of general or local peritonitis, were operated on immediately after admission under routine pre-operative sedation (Morphine Gm. 0.15 with atropine Gm. 0.0004 for adult). They were ideal cases and gave an almost negligible mortality, but the cases which came in after 40 hours with local or diffuse peritoneal irritation called for different management. Cases with local peritonitis progressing to abscess formation required absolute rest in bed with nothing by mouth, and fluids intravenously. If pulse, temperature and blood picture indicated improvement, operation was then considered.

In the presence of ruptured appendix and diffuse peritonitis, patients were prepared by sedatives and fluids intravenously (5 to 10% glucose

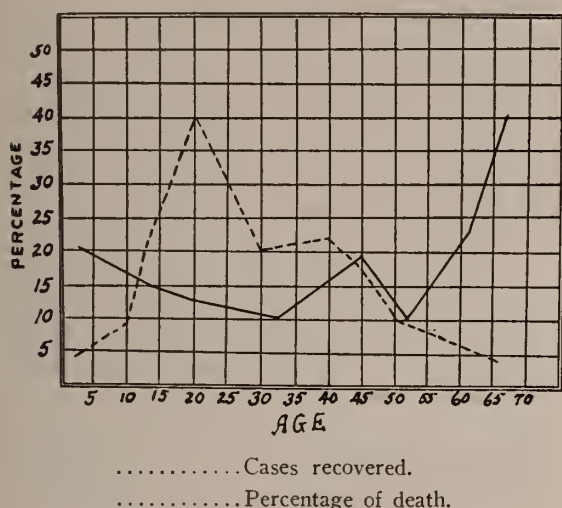


Fig. 1. The influence of age in recovery and mortality rate in ruptured appendix with diffuse peritonitis.

solution), and subcutaneously 2½% glucose in sodium chloride solution). Under this management surgical intervention can be considered. With more careful consideration of the patient's condition before operation, some of the cases which have been listed on the mortality chart might not have been there. A few of the cases in the ruptured appendix with diffuse peritonitis group might have been given a greater chance for recovery, if they had been given pre-operative treatment in an endeavor to improve their general condition.

**Anesthesia.** In almost one-half of the cases with no signs of generalized peritonitis, and with the patients in good condition, ether was administered. The other half were given ethylene. More than 85% of cases with generalized peritonitis and in poor condition were operated upon under ethylene anesthesia. A negligible number of cases were operated under local or spinal anesthesia.

**Operative technique.** In cases with appendiceal abscess, the appendix was usually not removed. The abscess cavity was drained. A ruptured appendix with diffuse peritonitis called for individualization of each case, technical skill and good surgical judgment. Two operative procedures were employed as shown in Tables 4 and 5. About two-thirds of the cases were treated according to a conventional method, that is re-

moval of the appendix with drainage. In this group to relieve post-operative distention a hot boric compressor heat cradle was applied to the entire abdomen. This method gave a mortality of only 18% in the hands of one of our surgeons, an operator however of experience and skill in abdominal surgery. The second method was appendicostomy<sup>3</sup>. The appendix was identified and removed. A No. 16 catheter or rubber tube was inserted through the omentum and then into the colon through the appendiceal stump. A plain catgut suture was then placed through the appendiceal stump and rubber tube, and tied. A purse-string suture of catgut or silk was then passed around the appendiceal base. The stump with the tube was inverted into the cecum and the purse string tied. The tube is then brought to the outside through a stab wound or through the original incision. The primary wound is closed with or without drainage. However, a rubber drain was usually inserted into the pelvis and another up towards the region of the hepatic flexure of the colon. In difficult cases of retrocecal appendix a simple ligation of the base of the appendix and removal of the infected portion without invagination saves time and produces less trauma. Appendicostomy is sometimes difficult and cecostomy accomplishes the same results and has the advantages of simplicity and speed.

**Post-operative treatment.** Immediately after the operation the patient receives 1000 c.c. of 5 to 10% glucose solution intravenously or the same amount of normal salt solution subcutaneously. This may be repeated every six to eight hours as needed. In addition in diffuse peritonitis with appendicostomy as much as three or four thousand c.c. of normal salt solution was introduced through the tube into the colon in 24 hours.

#### SUMMARY

1. Four hundred and fifty-six cases of appendicitis were admitted to St. Margaret's Hospital during a period of 26 months from January 1, 1933, to February 28, 1935. Careful study of these cases shows that the mortality rate for 1933 was 3.86%, and for 1934 and for the first two months of 1935 was 2.41%.

2. The possible causative factor of the lowered mortality rate during the second half of the period is discussed.

3. Thirty-eight cases of ruptured appendix



with diffuse peritonitis were operated on by conventional methods with a total mortality of 21%, while 16 similar cases treated with appendicostomy or cecostomy gave a mortality rate of 12.5%.

4. Cases treated with appendicostomy or cecostomy suffered little or no post-operative distention.

5. Analysis of the fatal cases of ruptured appendix with generalized peritonitis showed that most of the patients operated on were in poor condition before surgical intervention. There was a definite relationship between age of the patient and mortality rate.

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#### DIFFERENTIAL DIAGNOSIS OF DISEASES CAUSING HEMATURIA

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Hematuria presents a problem in urological diagnosis of utmost interest to the physician and the determination of its origin while occasionally is a simple procedure may at times baffle the ingenuity of the most expert urologist. In discussing the problems involved it is hoped that the seriousness of bloody urine will be brought to the attention of the general practitioner, who in most instances is the first to be consulted by the alarmed patient. When it is thoroughly realized that hematuria may be the "first, the last and almost the only symptom" of bladder malignancy, and in 54% of adult renal neoplasms the initial symptom, it is obvious that no one is justified in passing lightly over this important finding. Unfortunately we still see patients who have had their bleeding treated with medicines and the symptoms minimized at the sacrifice of most valuable time. Therefore, I would like to emphasize that these patients be immediately and thoroughly studied preferably at the time the bleeding is present—this study to include all available means at our command, in particular the cystoscopic examination. This applies in most instances of unexplained microscopic red blood cells as well as gross bleeding.

For the purpose of the discussion, hematuria may be divided into two great groups: 1. Essential or idiopathic hematuria, and 2. Hematuria due to demonstrable lesion in the urological

tract leaving out the hematurias that occur in strictly medical conditions such as leukemia, purpura, hemophilia, congestion of the kidney in cardiac failure, renal embolism in endocarditis and the various chronic renal inflammatory lesions associated with cardiovascular disease. Likewise such hematurias that arise from injuries of the kidney, bladder and urethra, acute gonorrheal infection, the passage of sounds, etc., will not be considered since the cause is obvious. In connection with the traumas it is well to mention the bleeding following violent exercise. It is not uncommon to see hematuria in athletes after exercise and an individual receiving a severe blow on the back may show bloody urine. Since hexamethylenamin is so commonly used it must be remembered that it may be responsible for painful urination associated with blood.

The three glass test affords a simple means of giving a clue to the site of bleeding. The patient is told to void equal amounts in three glasses. Blood in the first glass and appearing at the meatus means bleeding in the anterior urethra or between the meatus and triangular ligament. If in all the glasses its origin is likely to be either primarily or secondarily from the bladder, i. e., either the bladder or kidney. When in the third glass only it is considered to be from the posterior urethra.

*Essential Hematuria.* If a patient presents himself with gross blood in the urine, with or without pain and if repeated cystoscopic and x-ray examinations fail to account for the origin of the blood, it is said to be essential or idiopathic hematuria. This condition always has and still does constitute one of the difficult problems of diagnosis. Many writers believe this term is an admission of ignorance as to the true cause of bleeding. Nevertheless in spite of modern methods there still remain cases of unexplained renal bleeding in which the diagnosis seems not only justified but positively indicated.

For example: A case in point of a girl age 14 seen in 1925 with a history of hematuria extending over a period of 6 years, and with a family history of hematuria in the father's youth and also in one brother, was carefully studied over a period of time. The bleeding was frequently observed to come from the right ureter and never from the left. The pyelogram showed an irregularity of the upper calyx which suggested papilloma. There was no infection in either kidney. The present attack was of 4 weeks duration and the loss of blood became alarming. After consultation with a competent urologist a nephrectomy was agreed upon in

order not to overlook an early tumor which the pyelogram suggested. The kidney was studied in a competent laboratory, many microscopic sections were made and with the exception of a slight round cell infiltration about the papillae without ulceration, no pathology of any kind was discovered to account for the bleeding. Within 4 months the bleeding appeared from the remaining kidney. I quote this experience as a case of essential hematuria and because of the unusual feature of familial hematuria. This I believe is rare.

Rose<sup>1</sup> believes that certain types of renal pelvis designated as "dysuric" may account for this type of bleeding. In this type of pelvis the calices are long and narrow and extend deeply into the parenchyma of the kidney so that any slight obstruction to the free drainage of urine may produce localized back pressure resulting in the rupture of small vessels. In 1924 Lower<sup>2</sup> observed also that essential hematuria is apt to appear in the complex pelvis, those with long calices and many minor calices.

Many kidney pelvis have small, very thin-walled vessels near the surface of the mucous membrane which may easily open and produce copious bleeding. This variety of bleeding is analogous to the ordinary nose bleed. Overcrowding the kidney with large fluid intake may break one of these exposed vessels. Nephrototic kidneys when associated with bizarre pelvis, aberrant vessels or extra ureteral scar tissue bands have a tendency to bleed easily.

Wilbur and Priestly<sup>3</sup> and others call attention to the importance of focal infection as a cause of essential hematuria. The exact manner in which foci of infection may produce bleeding is not understood but they found in 100 cases 78% in which there was definite evidence of dental or tonsillar infection. Eradication of the infection had a very marked tendency to prevent recurrence of the bleeding.

For many years it has been taught that after complete study has shown no abnormality in the urinary tract to account for bleeding a checkup examination should be done in six months or a year before a final diagnosis of idiopathic hematuria is made. This still holds as good practice. It is possible that an early neoplasm present at the first examination remained undetected because of its small size and if present it should have increased in size sufficient for its discovery in the next examination.

*Bladder Bleeding.* A very large group of hematurias result from new growths in the bladder. Kretschmer<sup>4</sup> in a review of 300 cases of



carcinoma of the bladder found a history of bloody urine noted in 277 cases or 92.33% and he believes that the remaining 7.67% passed blood at some time or other but failed to note it. Bladder bleeding is quite often painless, intermittent, well mixed with urine and frequently large or small clots may be passed. Terminal bleeding ordinarily may be expected to indicate a lesion near the internal urethral orifice and caused by the contractures of the bladder in evacuating the last few drops of urine.

In contemplation of the above mentioned figures it behooves us then to urge cystoscopy by the aid of which immediate diagnosis may be made. It is apparent that the bleeding resulting from the benign lesions of the bladder such as ulcer, stone, the various types of cystitis and so-called benign papillomas can only be successfully diagnosed by the same means.

*Kidney and Ureter Neoplasms.* Bleeding is most frequent in the serious lesions of the kidney demanding early recognition and treatment, in particular tumors and tuberculosis. Here again bleeding is usually intermittent, ordinarily well mixed with urine, and may be associated with renal colic or be painless. Old brown blood evenly mixed with urine is almost always from the kidney. In the rather common renal tumors designated as hypernephromata Burford<sup>5</sup> finds that hematuria is almost universally the first indication and is of the interval type—the interval of bleeding may be months or even years. It is unfortunate, however, that many malignant tumors do not bleed until they are so large that they are easily palpable in the loin and are probably beyond control. One interesting type of renal lesion causing hematuria is the rather rare papilloma of the kidney pelvis, the only symptom of which may be a persistent hematuria. The lesion does not as a rule infiltrate the kidney parenchyma but tends to grow down the ureter; they seem to resemble the bladder papillomas and may suddenly change over into the malignant type and metastasize.<sup>6</sup> In contrast to the presence of hematuria in the adult kidney tumor it should be noted that this danger signal is almost never seen in the infantile and juvenile kidney growths.<sup>7</sup>

In the diagnosis of renal hematuria the pyelogram is almost essential. The retrograde method is the most valuable since it is quite possible that occasionally no shadow will be ob-

tained with the intravenous method, if the affected kidney does not have sufficient function to excrete the dye.

Tuberculosis of the kidney is one of the most important causes of renal hematuria being next to frequency of urination as the most common initial symptom of that disease.<sup>8</sup> A few remarks on the diagnosis of tuberculosis of the kidney seem to be in order because of its importance. Its recognition depends primarily on the identification of the tubercle bacilli in the bladder or kidney urine or in both, the appearance of the bladder and on plain x-ray films of the G. U. tract showing calcareous deposits in the region occupied by the kidney. Pyelograms here should be made with caution and only when absolutely necessary since it may result in generalization of the infection. The tubercle bacilli are best found by centrifugation of the urine at high speed for 15 to 20 minutes, obtaining the sediment with a capillary tube and making a thick smear to be stained in the usual manner.

*Hematuria from bladder or renal calculus.* All cases of the unexplained presence of microscopic red blood cells in the urine should make one suspicious of calculus. The passage of a very small sharp stone down the ureter results in colic associated with blood in the urine, the gross urine appearing clear but on microscopic examination red blood cells are found. Vesicle calculi by erosion of the mucous membrane results also in the finding of blood.

Blood in varying amounts is a common finding in the pyogenic inflammatory lesions of the kidney such as pyelonephritis and results from the fracture of the young blood vessels of the granulation tissue. Ordinarily blood is not an early finding but appears late in the disease.

Bleeding from prostatic lesions and from varicose veins around the neck of the bladder resembles bleeding from the posterior urethra. It has a tendency to be very profuse and large clots may form in the bladder. The passage of catheters or sounds in prostatics may result in alarming bleeding requiring radical measures. In these cases blood transfusion is a valuable help.

Hemoglobinuria must be mentioned in connection with this general topic. It results from the transudation of dissolved hemoglobin from within the blood vessels into the urine. It occurs in various toxic conditions resulting from chemical poisoning, in the "black water fever" of

malaria, is occasionally observed after blood transfusions and after large burns. It is recognized by its characteristic red color, the urine being clear or if cloudy on allowing the specimen to stand the supernatant fluid retains the red color. The Benzidin or Guaiac tests give a positive reaction. Red blood cells as a rule are not found on microscopic examination.

*Summary.* In conclusion it is hoped that the importance of bloody urine as a danger signal of grave pathology has been brought to the attention of the general practitioner. Modern methods of diagnosis including cystoscopy should be instituted at once, preferably at the time the bleeding is in progress so that in renal bleeding one may have the advantage of observing from which ureter the blood is coming. A satisfactory diagnosis may not be possible at one sitting so that it often becomes necessary to study these patients over a long period of time.

The causes of hematuria most likely to be encountered have been discussed.

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## MONGOLISM IN ONE OF DIZYGOTIC TWINS

### Report of a Case

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A fourteen-month-old girl afflicted with mongolism was brought to the Institute for Juvenile Research for examination previous to commitment. The patient was one of twins. The other twin was a normal boy.

The patient presented the typical appearance and most of the typical signs of mongolism. The face was broad and flat. The eyes were small,

oval, slanting. The inner canthi were not quite covered by vertical folds of skin, which, had they been more pronounced, would have produced epicanthus. The head was large,\* broad, flat at the occiput. The fontanelles were widely open, particularly the anterior fontanelle. Macewen's sign was positive. The fontanelles were not bulging, nor were the superficial vessels of the scalp engorged. The external ears were small, dish-like, turned forward. The lips were cracked. The tongue was not fissured. No teeth had erupted.

The hands were short, stubby, the palm pattern simplified toward the simian pattern. The chest form tended toward pigeon-breast, and the sternum was protruded as the ribs sank and



Fig. 1. Left to right: normal twin, normal sister, mongol twin.

straightened with each inspiration. There was no cardiac murmur.

The patient was pot-bellied but there was no umbilical hernia. Compared with her brother, her legs were short in relation to the trunk. Her feet appeared normal. The big toe was not widely set and there was no plantar crease. There was a general muscular hypotonia and a harsh dry skin.

There was a history of rapid increase in the size of the head during the first three months of life.

The twin brother was a well-nourished, sturdy, healthy, normal boy. He had seven teeth. The anterior fontanelle was small but open, Macewen's sign was absent.

There was no history of mongolism or other

\*The head size is atypical.



feeble-mindedness in the family. The parents were intelligent, cultivated people. They had one other child, a normal girl three years of age. The mother was 26 and the father 28 at the birth of the twins. The mother was in good health at the time of conception but was not well during pregnancy. She suffered a fall during this period. There was no history of twinning in the family.

It seems likely that this child in addition to mongolism had a transient hydrocephalus after birth.

*Discussion.* Since the twins are of opposite sex they obviously are of dizygotic origin. Other instances of the occurrence of mongolism in one of dizygotic twins have been reported and summarized.<sup>1,2</sup> Their significance lies in the fact that the concomitant development of a normal fetus and a mongol fetus in the same uterus demonstrates that no etiological hypothesis placing entire dependence upon a humoral mechanism of the maternal blood is tenable. Such hypothesis would be irreconcilable with such cases as these. The ready transmission of at least most endocrin hormones across the placental barrier makes it furthermore highly unlikely that the mechanism of the production of mongolism is humoral at all.

When mongolism occurs in identical twins both twins are affected.

These facts may be reconciled with the hypothesis of the author,<sup>1</sup> that mongolism is due to the fertilization of an ovum the viability of which has been diminished by its age or with the hypothesis of Rosenau<sup>2</sup> that mongolism is due to foci of tissue change in the ovary, perhaps scars marking the sites of old ovulations.

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#### CLASSIFIED MEDICAL ECONOMICS

"Most of the problems of Medical Economics center around the existence of a large low-income class. But these are economics rather than medical problems and their solution should not be sought through the reorganization of approved forms of medical practice while the industrial and economic conditions responsible for the insufficient income are entirely ignored."—R. T. Elmer, *Medical Record*.

#### LIFE, DEATH AND DEXTROSE

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There are fashions in medicine, as there are fashions in women's hats. Fifty years ago, so I am told, most patients were starved and thirsty; now, they are dextrosed and drowned.

Time will eventually determine the real value of glucose and fluids given parenterally, but already criticism is beginning to arise of the too free use of such medication<sup>1</sup>, deaths are being reported<sup>1, 2, 3</sup>, this paper and others. Rumold, working in Orr's laboratory<sup>1</sup>, gave continuous venoclysis of saline and dextrose to experimental animals, found "pulmonary involvement in every instance," usually pulmonary emboli. Titus<sup>4, 5</sup>, again warned of over-stimulation of the pancreas with consequent increase in endogenous insulin and possible hypoglycemic shock. Reactions from intravenous infusions have been widely written up<sup>2, 6, 7, 8, 9, 10</sup>.

A criticism not widely enough mentioned, is that of inflexibility of administration. A "standard" 5, 10 or 25%<sup>30</sup> means that the treatment is not individualized to the patient and his illness. In marked dehydration, a very weak solution should be given in large amounts, or the glucose may be given intravenously and fluids subcutaneously. If additional glucose is needed, especially in the presence of edema, it may be administered in 25 or 50% solution.

Dextrose (d-glucose), a hexose monosaccharide, is found in the blood of all animals in *small quantities* (usually about 0.1%), and in larger amounts in fruits and plant juices<sup>34</sup> usually associated in the latter with fructose and sucrose (cane sugar).

Its practical importance can be judged from the fact that over one-half of the body's energy is estimated to be derived from glucose<sup>31</sup>. It is the end product of carbohydrate metabolism, i.e., the form into which all carbohydrates (and up to 58% of proteins and 10% of fats) are converted before they are available for oxidation.<sup>35</sup> In the healthy body, dextrose is constantly being burned and replaced.

Despite the intermittent intake of nutrition, the blood sugar is kept at an average level of 100 mgm, with variations between 80 and 120 being considered in the normal range. The compen-

sating mechanisms to stabilize the blood sugar include: (a) the liver, which withdraws excess sugar when the blood sugar is elevated (blood in the portal vein may contain almost 200 mgm), converts it into glycogen and stores it. Glycogen is also stored, to a much less extent, in muscles and other organs. When the blood sugar drops below normal, the glycogen is reconverted into dextrose and released into the blood stream. (b) the kidneys: When blood sugar rises above 170 mgm. in a normal individual, glycosuria begins. This is not true in the rare cases of "renal glycosuria," in which the kidney threshold is lower and sugar spills over into the urine with a much lower blood sugar. (c) pancreas: insulin production is increased as blood sugar increases.

In practical application, all these points must be kept in mind, with reservations that an ill patient will not present such a smoothly working machinery and that dextrose is given by routes not natural to the body and in very high concentrations. (The weakest solution of dextrose given clinically is 5%, approximately 50 times its concentration in the blood stream.)

Glucose must be given slowly to avoid hyperinsulinism and to prevent loss through glycosuria. If infused rapidly, a quantitative urinary sugar should be run, so that the net amount retained by the organism can be determined. Graphs of blood sugar during dextrose injections show a beginning fall after 75 gm. have been given<sup>5</sup>. This is interpreted to be due to overstimulation of insulin formation.

A frequent renewal of the dextrose reserves of the body is necessary, because the stored glycogen of the liver is largely depleted after missing several meals<sup>11</sup>. Research is in progress on the question of dextrose utilization in disease. Koster and his coworkers<sup>33</sup> have found that postoperatively the respiratory quotient does not usually rise above 0.76 during the first week, apparently indicating that glucose is not oxidized during that time. Preoperatively, these same cases showed a marked rise toward 1.0, after intravenous glucose.

Respiratory quotient =  $\frac{\text{volume of carbon dioxide produced}}{\text{volume of oxygen consumed}}$

When carbohydrates are being utilized, the quotient is 1.0, with fats 0.7 and with proteins between the two, often around 0.82. "The absorption of an abundance of carbohydrate does not greatly change the amount of combustion taking place. It may result in the use of

carbohydrate as a fuel almost to the exclusion of fat for time being."<sup>11</sup>

If the apparent significance of these findings can be corroborated, it will mean that the amazing results post-operatively of intravenous infusions recorded by some authors, Hyman<sup>2</sup> for example, are due solely to the fluid or medication given. The work of Johnston is enlightening in this regard. He has apparently demonstrated that there is no oxidation of dextrose injected into persons in a state of complete starvation, since the sugar was stored, or in those in a sub-maintenance or partially depleted state, since storage took place over oxidation for the purpose of accumulating glycogen, and oxidation did not occur until the stores were filled. He gives an excellent bibliography with his article on the relation of salt and water to the oxidation of dextrose,<sup>12</sup> collected, for the most part, from research biological publications rarely available to the clinician. The findings in this field may be of immense value later, but at the present time, they seem almost contradictory and impossible of practical application.

*Death following glucose.* Male, aged 54 years, chronic hypertensive for many years; huge, hypertrophied heart, easily palpable radial arteries, sclerotic retinal vessels; presented dyspnea, orthopnea and edema of legs. He was irrational and had been suffering from mental deterioration for several years (no history, physical or serological findings of lues), apparently as a result of encephalomalacia secondary to arteriosclerosis. He refused to take nourishment, except fluids by mouth, so was given 50cc. of 50% dextrose [25 gm.] glucose direct from commercially prepared ampoules<sup>13</sup> at intervals of 12 hours, with no increase of temperature or local phlebitis. The third dose, given in approximately fifteen minutes, was followed within three minutes by tremors and jerking motions of right arm and leg. A generalized convulsion took place and exitus, despite the usual treatment. Necropsy refused. Here, apparently, a cerebral embolus was the causative factor; its source either the dilated auricle or the sclerotic cerebral vessels.

*Glucose in shock.* A woman of 31, following a normal pregnancy, her second, was in labor thirty hours, pains being irregular both as to force and regularity. Forceps applied because second stage was delayed over two hours, and fetal tones accelerated. The bleeding was slight, uterus firm and of normal size. About fifteen minutes later, she complained of feeling weak. Pallor appeared, blood pressure dropped to 80/60 (normal 115/74), and pulse rapidly became imperceptible. In addition to external heat, Trendelenberg position, she was given 50 cc. of 50% warmed glucose solution over a period of ten minutes. Before the injection had been completed, the pulse became



perceptible, color improved and patient became fully conscious. She remained in good condition subsequently, with no further treatment.

*Glucose in lowering acute hypertension.* This is only one case, and there is no attempt to state that glucose will always lower suddenly raised blood pressure or that it will avert an impending cerebral hemorrhage. As it was the only medication used, the effect might be ascribed to its use. Woman of 68, chronic hypertensive with usual pressure around 170/100, was seen in distant home, complaining of gradual onset of severe, generalized headache associated with repeated vomiting of bile-stained material (6 times) and numbness of left leg and arm. Never before or since, has she had these symptoms; ophthalmoscopic examinations have been repeatedly negative for choked disc or other retinal changes; (except some sclerosis of vessels); there was no fever, no abdominal pain or tenderness, no unusual food ingestion or history of allergy. Blood pressure was 220/115; heart was negative, except for moderate enlargement of left ventricle. Autolavage of alkali powder and 20 cc. of 50% glucose given slowly. Headache gone in ½ hour; pressure down to 180/110. No sedative or narcotic given; no venesection.

#### *Indications for dextrose (and fluid) therapy*

##### I. Hyponutrition:

a. Due to inability to take in, retain and utilize sufficient nourishment.

##### 1. Vomiting and/or diarrhea

(a) Gastrointestinal tract: gastroenteritis (esp. of children), colitis, dysentery, obstruction; preoperatively, during or postoperatively<sup>2 14 15</sup> exogenous poisoning.

(b) Peritonitis, appendiceal abscess.

(c) Hyperemesis gravidarum

(d) Pre- and postoperative; during operation if spinal anesthesia is used<sup>16</sup>, or if shock and hypotension appear. Postoperative complications, such as gastric dilatation, ileus, vomiting and anuria<sup>2</sup>

##### 2. Fistulae, intestinal or biliary.

##### 3. Unconsciousness or coma:

(a) Cranial trauma; also valuable because will decrease intracranial tension

4. Dieting, starvation, prolonged anorexia; during and after heavy work (fluids and minerals also needed, especially if sweating marked).

##### 5. Heart:

(a) Coronary thrombosis<sup>17</sup>.

(b) Acute myocarditis, especially in infectious diseases.

##### b. Due to increased oxidation:

1. Increased rate of metabolism, notably hyperthyroidism.<sup>21</sup> Glucose indicated not only because of increased metabolism, but to protect liver. Mora<sup>18</sup> has called our attention to hepatic pathology, functional in that the glycogen reserve is diminished, organic in that there is a lesion (simply termed "chronic patchy parenchymatous interlobular hepatitis"). Arnold Jackson, in discussion, suggested that the func-

tional disturbance may be due to increased need of body for glucose.

2. Acute infectious diseases and prolonged fevers, pneumonia, sepsis. Also valuable here for effect on heart.

3. Malignancy and tuberculosis. Glucose should spare fat.

##### II. Disturbances of water balance.

##### A. Edema:

1. Edema of cardiac origin.

2. Increased intracranial pressure following trauma, "wet-brain" of lead poisoning and delirium tremens; possibly, uremia and convulsions. Also, to lessen pressure of brain tumors preoperatively, and those inoperable.

3. Glaucoma and increased intra-ocular pressure postoperatively. (speculative value).

##### B. Dehydration:

1. As listed above under hyponutrition, and below under metabolic dysfunction except that either fluids are administered separately or a weak dextrose and saline solution given intravenously.

C. Hemorrhage, until transfusion can be prepared, donor and recipient typed, or where transfusion impossible. We give dextrose solution to the donor, as the latter has undergone a hemorrhage, controlled though it be.

##### D. Shock:

(a) Traumatic, including operative.

(b) Burns

##### III. Metabolic dysfunction:

a. Acidosis<sup>2,19,20</sup>, especially ketogenic acidosis (with insulin) and "acidosis" of children, cyclic vomiting.

b. Liver: decreased function by its disease, biliary disease, hyperthyroidism, etc.<sup>32</sup>

c. Hypoglycemia: Should be used only in acute emergency, because glucose will stimulate increased insulin formation (see current references for high fat diet, John's insulin treatment for spontaneous hyperinsulinism)

##### IV. Surgical:

A. Preoperatively, if malnutrition, liver inefficiency (especially history of recent jaundice or cholecystitis), intestinal operation<sup>2 34</sup>, history of epilepsy, hyperthyroidism (with iodine), heart disease (with digitalis or epinephrine), diabetes (with insulin and fluids); hemorrhagic disease (with whole or citrated blood)<sup>2</sup>. During operation<sup>30</sup> or post-operatively, it has been frequently employed to prevent development of anuria following genito-urinary surgery, especially in prostatic resection and other obstructive nephropathies; surgery of chest and nervous system. I have been unable to find a single reference to the use of dextrose in circumcisions, however.

##### DOSAGE:

*General principles:* Despite the advocacy of continuous intravenous dextrose administration, some observers<sup>5</sup> including ourselves, believe that

single intravenous doses repeated one to three times daily are preferable to prolonged injection, which stimulates to increased insulin formation and upset body chemistry, local phlebitis, and overloading of cardiovascular system with fluids<sup>1, 10</sup>. In an adult, 60-75 gm. is the usual amount given, with subsequent doses of 50 gm. If given in a 25% solution, 30 minutes should be consumed in administering 25 gm.

We have found that where concentrated glucose solutions are needed and fluid definitely not desired, the use of ampoules already prepared commercially, containing 50 cc. of 50% glucose i.e. 25 gm., given directly from the warmed ampoule by luer syringe, to be simple and economical.

The exact dose needs be governed by age, disease and functional condition of normal routes of supply. In increased intracranial tension, either 50 cc. of 50% solution<sup>10</sup> or 100 cc. of 25% have been advocated. In cardiac asthma, Parker<sup>21</sup> uses 50 cc. of 50% solution (in addition to morphine, venesection, digitalis). In cardiac decompensation, either 25 or 50% solution, with twenty minims of digalen or eight of adrenalin. Shock or hemorrhage calls for rapid administration of glucose; the greater the shock, the more rapidly the solution may be given. A strongly hypertonic solution e.g. 25%, up to 300 cc. in an adult, gives more blood and hydrates the blood stream from the fluid lost in the tissues. Hemorrhage indicates the need of blood, but temporarily, an intravenous drip of 10% dextrose can be started, and citrated blood added. In dehydration, fluids should be administered as a weak solution (5-10%) in saline Ringers solution, or more conservatively<sup>14, 22</sup>, unless fluids needed by blood stream route, they are given subcutaneously, rectally or by mouth, and glucose given intravenously. In diabetic acidosis, 10% glucose in saline, with 2 units of insulin covering each gram of sugar, works out well.

#### *Routes of administration:*

1. By mouth, if possible. Wood and Ross<sup>10</sup> state that "surprisingly large quantities can be given per day in the form of frequent small drinks." The sugar given should be glucose or fruit juice, not sucrose as they suggest may be used. Glucose may be obtained already commercially prepared in powder form, or in the form of inexpensive, pure candy made of glu-

cose. Sucrose is sickening, especially if taken on an empty stomach, and Band's experiments<sup>23</sup> many years ago, demonstrated that even a 10% solution resulted in congestion of gastric mucosa. Lactose with a little lemon juice, may be used in 10% solution, without nausea or distress.

2. Rectal administration, while of use for absorption of fluids, has not been widely accepted during recent years as of great value for absorption of nutrition (the "nutrient enemata" of alcohol, glucose, egg and meat extract being an extinct medical fashion). Many investigators, among them Weld<sup>24</sup>, have discovered that hourly blood sugars taken after rectal glucose, show no elevation. Others, notably recent workers at the Mayo Clinic, believe that the liver removes excess glucose at once and stores it.

3. Intravenous administration is the most widely employed, because the amount taken can be accurately determined and because the injection can be effective very rapidly.

4. Intraperitoneal administration is contraindicated in medical and surgical conditions of the abdomen, heart and lung. It seems difficult to give any amount of fluid or glucose without causing (a) increased intraabdominal pressure with resultant upward displacement of diaphragm and interference with cardiac and pulmonary function, or possible paralytic ileus; (b) irritation of peritoneum, with sterile peritonitis and distension. Blackfan<sup>25</sup> and Maxcy introduced this method, but discontinued it because of serious reactions. Sanford and Heitmeyer<sup>26</sup>, by a new technique in preparing the sugar, have made the method safer, as stated by Beckman<sup>8</sup>.

I once saw a girl of nine, suffering from second degree burns of one-third of body, who took large quantities of fluids by mouth for 12 hours. Then, intraperitoneal administration of 10% glucose in saline was started, and 500 cc. given over a period of three hours. The abdomen became distended, the child dyspneic, cyanotic, and

5. Intramuscular administration is a promising method, especially where glucose is needed in infants and children. Glaser<sup>27</sup> gives 20-40 cc. exitus followed in two hours.

of 10% glucose in thigh muscles of infants; up to 100 cc. in older children and adults. We have given 5% glucose in saline as hypodermoclysis with no ill effects.



*Contra-indications:*

By some authors, there are considered practically no contra-indications. Hyman,<sup>2</sup> states "by the single technical procedure (of intravenous drip), the problem of nutrition and of the introduction of fluid, salts, drugs, blood and serum becomes automatic." It is our belief that dextrose and saline or Ringer's solution is not "nutrition" in any complete sense of the word, and they should be regarded as valuable adjuncts, but only temporary ones, until such time as necessary vitamins, minerals, protein, can be taken by the natural route.

Friedemann<sup>3</sup> who reported on the use of continuous intravenous infusion in 1913, says, "The infusion, no matter what solution or what additional drug is added, is *not a cure-all*. It is futile, even dangerous, in cachexia accompanying certain diseases of the heart, in arteriosclerosis, and in pneumonia in plethoric people, and in blood poisoning and sepsis, except gynecologic."

It would seem that the first contra-indication would be a normally functioning gastrointestinal tract.

*Complications:*

## 1. Local:

(a) In vein, range from simple phlebitis, to thrombosis, with possible (but rare) embolism.

(b) Perivenous tissues may necrose, if concentrated solution escapes from vein.

## 2. General:

(a) "Sharp chill, fever, shock and collapse, which may be quite serious"<sup>2, 8</sup> Titus and Dodds have stated, "reactions are almost always due to faulty technic either in preparation of glucose or method of its administration."<sup>22</sup> We have never seen anything more serious than a subjective sensation of warmth when the 50% solution was employed, except in the one moribund case given. The 10% dextrose in saline solutions already sterilized in gravity bottles, give no reactions even when kept for months, if administered at the rate of 8 cc. per minute, and the liquid is warmed to body temperature.

1. The causes of this reaction have been determined to be due to using old distilled water or water once opened, unboiled rubber tubing, marked difference in hydrogen in concentration; 2. impure glucose, caramelization of glucose from too high temperatures in autoclaving, and individual susceptibility. Complete details for pre-

venting reactions can be found in articles by Thompson<sup>28</sup> and Titus and Dodd,<sup>22</sup> the latter quoted by Beckman.<sup>8</sup>

## (b) Embolism:

(1) From local phlebitis, is apparently very rare when the cubital veins are used. Friedemann<sup>3</sup> after studying microscopic sections, concluded that any long infusion will result in phlebitis.

(2) Embolism due to dislodging of distant thrombosis, as in case cited. Friedemann<sup>3</sup> states, "if a fatal embolism occurs, the local thrombosis is an accidental concomitant phenomenon. The embolism is due to a distant thrombosis, against which we are helpless. . ."

(c) A theoretical possibility I have not seen mentioned, in regard to the long continued intravenous infusion of dextrose solutions, is the possibility of poor wound healing in the presence of an elevated blood sugar.

(d) Overstimulation of insulinogenesis.<sup>5</sup>

(e) Circulatory embarrassment, by overloading of cardiovascular system<sup>1, 10</sup> "Throughout the administration, watch should be kept for any sign of overtaking. The first symptom is usually a sense of tightness in chest or of vague epigastric discomfort, and infusion should be temporarily discontinued. If it is disregarded, vomiting, respiratory distress, slight pulmonary edema, failing pulse and other signs of cardiac embarrassment appear in that order." Wood and Ross.<sup>10</sup>

*Conclusion:*

An attempt has been made to summarize and criticize present dextrose therapy, with emphasis on these points:

1. That intravenous infusion is not always a harmless procedure, should only be given for definite indications, and should be discontinued as soon as natural routes are available.

2. That with present biochemical methods, we cannot hope to give complete nutrition for any length of time by an artificial copy of substances not completely understood or even identified, in some cases.

3. That the present wave of over-enthusiasm will abate, leaving a solid residuum of fact concerning this valuable therapeutic weapon.

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## PYLOROPLASTY IN THE TREATMENT OF DUODENAL ULCER

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The advent of aseptic surgery emboldened men of high courage and rare genius in the latter years of the nineteenth century to attack the problem of surgical treatment of peptic ulcer. The first great achievement was the application of surgical drainage of the stomach into the jejunum in cases of obstruction at the pylorus due to cicatrization resulting from repeated exacerbations of inflammation. Such patients were operated upon only after years of suffering and not until gastric retention with vomiting of undigested food made the diagnosis of pyloric obstruction quite clear. The brilliant success of gastroenterostomy in the relief of cases of this type led the bold spirits of the last century to seek methods whereby the disease "peptic ulcer" of the duodenum could be treated with surgical methods in the earlier stages, and much of the severe ordeal of waiting for obstruction to supervene could be prevented. Their enthusiasm no doubt carried them too far and many patients were operated upon and gastroenterostomy performed without clearly defined indications. The long waged battle between the medical and surgical forces over the best method of treating peptic ulcer is a direct result of some of the misguided enthusiasm of followers of these surgical pioneers. It is unfortunate that there still exists a general misconception of the indications for surgical treatment of patients who harbor peptic ulcers of the duodenum.

Jaboulay, whose name is also linked with the simple "bottle operation" for hydrocele, was probably the first to suggest the principle of pyloroplasty in surgery of the duodenum. Mikulicz, whose name will always be associated with the relief of stenosis of the duodenum, conceived the principle to which his name is applied of enlarging the pyloric outlet. This hardy pioneer also left his name as a synonym for the well known operative procedure for the relief of cancer of the descending colon. The idea of surgical treatment of gastric disease spread to the United States and the names of Finney, C. H. Mayo, Deaver, Judd, Balfour, and their asso-

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ciates have had prominent places in the literature on the subject of pyloroplasty and similar operative procedures.

It is the purpose of this paper to present the author's experience with this type of operation in the surgical treatment of duodenal ulcer, to discuss the indications for its application and evaluate the end results. The material presented has been solely that of the author, in patients operated upon in private and including a few cases from the charity wards of the St. Louis City Hospital. All patients have been followed by personal observation and many of them have been reexamined by my clinical associates with careful checking of the postoperative gastric acidity and by roentgenographic methods. Because of obvious limitations a discussion of various types of medical therapy in duodenal ulcer is purposely omitted.

The scope of this paper does not permit a discussion of the theories concerned with the etiology of peptic ulcer of the stomach or duodenum. Probably several factors are combined in causing the symptoms and associated lesions. The experimental surgeons have presented evidence that ulcer is due to acid gastric secretion acting on the mucous membrane which lacks some neutralizing factor to adjust the physiologic balance between the secretions and enzymes of the digestive juices of the stomach, duodenum, pancreas and liver. Mann and Williamson<sup>1</sup> have produced experimentally by so-called surgical duodenal drainage peptic ulcers in dogs that are indistinguishable histologically from those found in humans. Quite recently Bollman and Mann,<sup>2</sup> corroborating the experiments of Von Wagoner and Churchill,<sup>3</sup> have described ulcers produced in dogs by prolonged ingestion of the drug cinchophen. These ulcerations are likewise quite similar to those seen clinically.

The indications for the selection of pyloroplastic methods in operating for duodenal ulcer are not altogether well defined. Mechanical factors are of great importance. The duodenum itself must be readily accessible so that it may be sutured without tension, and must be mobile or mobilizable. The caliber or size of the lumen of the first and second portion of the duodenum should be adequate. The amount of acute or chronic inflammatory induration in the duodenal wall will determine the ease with which the

suturing can be done. The first portion of the duodenum when acutely inflamed is quite friable, easily torn, and very difficult to suture. It is comparable to wet tissue paper. In such circumstances one can readily comprehend the hazard of disaster in the event of a duodenal leak and subsequent fistula. Thus it is clear that the choice of pyloroplasty is to a great degree limited by the nature of the anatomicopathologic conditions present in the individual case. Surgical operations upon the stomach and duodenum should not be attempted by the inexperienced. The proper selection of the best procedure to apply in any given case must, therefore, be based upon an exact appreciation of the pathologic inflammatory change in the duodenum and nearby viscera, especially the pancreas, together with a clear conception of the surgical mechanics and anatomy involved in restoring the digestive function to a state approximating physiologic normality.

The type of patient in whom pyloroplasty is most frequently used is the young individual with a marked hyperacidity, who has a non-obstructing ulcer of the anterior wall of the duodenum. The lesion in these patients is usually associated with a marked duodenitis and quite severe symptoms. It is in these cases that stoma ulcers are apt to follow gastroenterostomy and therefore it is imperative to get relief of the associated severe pylorospasm which is accomplished by the removal of the anterior half of the pyloric sphincter as emphasized by Judd and Nagel<sup>4</sup> and by Deaver and Burden.<sup>5</sup> In overcoming the spasm a free physiologic regurgitation of alkaline duodenal juices from the liver and pancreas into the stomach is an important factor in the reduction of the hyperchlorhydria. The bleeding duodenal ulcer is easily treated by pyloroplasty only if it is easily accessible on the anterior wall. Unfortunately the hemorrhage is quite likely to be from a chronic indurated ulcer on the posterior duodenal wall, attached to the head of the pancreas and therefore not easily amenable to such a surgical approach. In the latter type of case gastroenterostomy with cauterization of the ulcer and inversion together with gastroenterostomy or a pyloric exclusion as suggested by Devine<sup>6</sup> would seem to be the procedure of choice. The cases in which bleeding is quite severe usually have a posterior wall ulceration and it is of great

importance to prevent further bleeding by eradication of the lesion where mechanically possible with minimal risk. Pyloroplasty can, however, be applied to many such cases by excision of the anterior duodenal wall and cauterization of the "kissing" or contact ulcer which is directly opposite on the posterior duodenal wall. The technic of this procedure has been described by Balfour.<sup>7</sup> One will occasionally see a patient with quite severe symptoms, hyperperistalsis, marked pylorospasm and hyperacidity, in whom sedation and dietetic regimen fails to accomplish a cure. Such individuals are apt to be extremely hypersensitive to all forms of stimuli, are restless, energetic, full of worries. Such a patient is a questionable subject for surgery but even in the absence of definite roentgenographic findings surgical exploration is indicated and pyloroplasty suggested as a method of relief of the pylorospasm. Not infrequently chronic disease in the appendix or gall bladder will be the cause of the patient's symptoms and definite relief afforded by removal of the offending organ. Such a series of cases were recently reported by Abel.<sup>8</sup> One cannot determine just which patient is best suitable for pyloroplasty until that patient is on the operating table with the ulcer exposed and after the surgeon has made a careful analysis of all influencing factors such as the age and general condition of the patient, the nature and extent of the inflammatory changes associated with the ulcer, the mechanical factors dependent upon the size and anatomic configuration of the individual such as the width of the duodenal lumen, its mobility and accessibility, the association or combination of other diseases such as cholecystitis, hepatitis, cirrhosis, splenomegaly, gastric ulcer, gastric carcinoma, or appendicitis. All of these are possible influencing factors in the proper selection of pyloroplasty in surgery for duodenal ulcer.

The contraindications to the employment of this type of procedure are entirely technical. If the pyloric end of the stomach and duodenum are fixed deep in the right upper quadrant of the abdomen, and the duodenum cannot be easily mobilized by incision of the adjacent peritoneal folds, if there is extensive cicatrix present throughout the duodenal wall it is better to abandon the idea of plastic procedure and depend on classic posterior gastroenterostomy which will

give excellent results in the vast majority of cases. Marked pyloric obstruction due to extensive scarring, or deep craterous ulcers on the superior and inferior borders of the duodenum with fixation to the head of the pancreas or lesions which are quite distant from the pyloric ring are likewise best suited for gastroenterostomy; and in these characteristic lesions pyloroplasty should never be attempted. Consequently, one can realize that the use of plastic reconstructive procedures on the pyloroduodenal region is restricted to a small group of carefully selected cases. Indications for its use are, however, well defined and the inexperienced should not jump to the conclusion that it is safest to do a gastroenterostomy in all cases. Such logic is false. Many modifications of plastic operations on the pyloroduodenal region have been described and the experienced gastrointestinal surgeon in the presence of definite clinical and pathologic indications will be able to make a proper selection in the best interest of the patient.

There are several advantages afforded by pyloroplasty. Most writers point to the obviously lower mortality rate as compared with gastroenterostomy or resection. This may be more apparent than real when one considers that in general plastic operations are done on the better surgical risks. A second feature is the removal of the ulcer itself by a direct attack upon it. This, however, in the absence of exact information as to the etiology of peptic ulcer has the appearance of treating the effect rather than the cause of the disease. Academic questions need not concern us here provided that we can offer reasonable and safe means of relieving the patient's symptoms. Pyloroplasty also has the advantage of affording a complete inspection and palpation of all areas of the duodenum likely to be involved in the disease process, and a more intelligent approach to the future management of the patient in his postoperative and future dietetic control. In the event of the return of the patient's symptoms following such a conservative procedure it is always possible to reopen the abdomen and perform posterior gastroenterostomy or gastric resection if indicated. The operation of pyloroplasty carries very little shock and it may be readily used to advantage in the presence of associated lesions in the biliary tract where the surgeon, in order to remove all



possible causes for the patient's symptoms, finds it necessary to perform cholecystectomy or drainage of the common bile duct. Thus it is possible in older individuals of poor general condition to combine this conservative method in treating duodenal ulcer associated with cholecystitis and cholelithiasis whereas the performance of gastroenterostomy would carry with it a greater amount of surgical trauma and shock. The following case history illustrates this point:

*Illustrative Case History:* Mrs. J. L. K. came to the

*Operation:* The abdomen was opened through a high right rectus incision. The gall bladder was found to contain multiple stones. There was a marked hepatitis overlying the gall bladder and the liver edge was rounded, and the organ quite firm and rubbery in consistency. There was also a definite ulcer scar on the anterior wall of the duodenum. There was a subacute inflammatory reaction present in the ulcer as evidenced by stippling, punctate ecchymosis, and the formation of small blebs. The head of the pancreas was definitely harder than normal and this consistency extended throughout the organ. It was decided to perform cholecystectomy and pyloroplasty, excising the duodenal



Figure 1. Arrows denote deformed duodenal cap—the site of a chronic anterior wall ulcer. There was a "kissing" ulcer posteriorly. The patient's symptoms were severe, characterized by recurrent bleeding with melena.

clinic complaining of severe epigastric pain coming in attacks and associated with markedly uncomfortable belching and inability to digest fat or greasy foods. The attacks of pain had been occasionally severe enough to require the administration of morphia for relief. The belching was relieved only at times by the use of alkalis and baking soda. Examination of the patient revealed a tall thin individual. Blood pressure was 140 MM of mercury systolic and 80 MM diastolic. Electrocardiographic tracings showed definite left ventricular preponderance with some myocardial damage. The peripheral vascular tree was sclerotic. Gastric acidity was total acidity 60, free hydrochloric 35. Examination of the blood serologically gave a negative Kline and Kahn tests. The erythrocytes were 4,750,000, leucocytes 8,000 per cubic millimeter. Urine, a trace of albumin. Cholecystography by the oral method demonstrated the presence of numerous gall stones. Examination of the gastrointestinal tract with the barium meal and enema was not done because of the definite evidence of gall stones. Operation was advised.

ulcer and inspecting the posterior wall which was found to be free from contact ulceration. The duodenal cap together with the anterior half of the pyloric sphincter was excised and the continuity of the gastroduodenal wall reestablished by a direct closure with chromic catgut reinforced with silk interrupted sutures. The appendix was likewise subacutely inflamed and was removed, ligating and inverting the stump. The abdomen was closed without drainage.

*Post-Operative Course:* The patient was treated in the usual manner by administration of fluids parenterally for 72 hours and then was permitted small feedings of cooked cereals, jello, junket; thereafter the dietary was increased in accord with the principles well established in the medical management of acute ulcer cases. She made an uneventful recovery, left the hospital on the twelfth day following operation and has remained free from gastrointestinal symptoms.

The foregoing case report illustrates the advantages of the pyloroplastic type of procedure

on the relatively poor risk patient and in the presence of associated lesions of the pyloroduodenal region all of which may produce similar symptoms. This patient would not have been relieved of her symptoms by cholecystectomy alone, nor would she have been cured by an attack solely confined to the chronic duodenal ulcer not to mention the subacutely diseased appendix. She was a poor surgical risk because of her cardiovascular system and a minimal amount of surgery in the shortest possible time commen-



Figure 2. Post-operative roentgenogram two and one-half years following operation. Note absence of duodenal cap—yet smooth contour of bowel wall. Fluoroscopically the duodenum is freely movable, indicative of absence of adhesions which would cause fixation, a source of persistent symptoms.

surate with accurate workmanship was important in diminishing the necessarily greater operative risk. It was found necessary to combine pyloroplasty with surgical procedures on the biliary tract in five cases in the series presented here. All of these patients recovered without complications.

The chief advantages and indications for the employment of a direct attack on a duodenal ulcer lie in the relative safety of these operations and freedom from postoperative complications. It is a more physiologic operation in that it provides free egress for the gastric contents into the duodenum rather than in the jejunum where

stomal ulceration is prone to develop in at least approximately three per cent of cases in the opinion of Balfour.<sup>9</sup> Other authorities such as Berg<sup>10</sup> and Straus<sup>11</sup> report the incidence in much higher percentages. Pyloroplasty will circumvent the possibility of such complications in cases where its applicability is suitable. The frequency of selection of plastic procedures on the pyloroduodenal area will vary with the experience of the surgeon; the greater the experience the more frequently will he be able to apply these principles in well chosen cases.

The technical details in performing pyloroplasty are not extremely difficult. The same general principles of making a leak-proof anastomosis with sutures anywhere else in the gut are employed. The methods suggested by Judd and Nagel<sup>4</sup> and by Balfour<sup>7</sup> have been used exclusively in this series of cases. In brief, the operations consist of opening the abdomen, through a high right paramedian incision to get adequate exposure of the contents of the right upper quadrant. The contents of the upper abdomen including the liver and biliary tract, as well as the stomach and duodenum, are carefully inspected and palpated. Should pyloroplasty then be decided the procedure of choice, the operative site, the pyloroduodenal region, is elevated into the field and a Doyen clamp inserted through the gastrohepatic and gastrocolic omentum in such a way as to place the pyloric end of the stomach between the rubber covered blades of the clamp. This maneuver facilitates steady exposure of the stomach and duodenum and is more easily maintained in position by the first assistant. Steady retraction of the abdominal walls is provided by a second assistant. If advisable the interior of the duodenum may be palpated by an exploring finger inserted through a small incision placed on the gastric side of the pylorus. Should there be extensive multiple ulceration or a large posterior wall crater, pyloroplasty can be abandoned and posterior gastroenterostomy or gastric exclusion proceeded with as an alternate choice. Pyloroplasty having been definitely elected, retraction sutures are then placed at the superior and inferior border of the pyloric muscle, preferably including the muscle itself in the traction suture which provides distinct demarcation of the posterior half of the muscle during the subsequent steps of the operation. The tissue to be excised is then marked



off by application of Doyen forceps at suitable points. The ulcer bearing segment of the duodenal cap together with the anterior half of the pyloric sphincter muscle is then wholly excised with knife or scissors. Following this step a wide exposure of the first portion of the duodenum and its posterior wall is obtained and it is quite easy to carefully sponge away the duodenal and biliary secretions affording complete inspection of the entire duodenal mucous membrane. At this stage one can readily provide for the "kissing" or contact ulcer by cauterization excision and suture. The anterior walls of the duodenum and stomach are then directly reunited with a continuous suture of size 00 Dulox catgut, using the surgical and atraumatic curved needle. The first row of stitches includes the mucous membrane and small hitch into the muscle layer. A second inverting row of sutures is then placed so as to approximate accurately the serous layers of the pyloric duodenal walls. The operation is concluded by two or three reinforcing stitches of silk which includes adjacent tags of fat from the gastrohepatic and gastrocolic omenta. Finally a suture is placed fastening the anterior wall of the stomach to the falciform ligament. This step is designed to hold the pyloric end of the stomach in the upper quadrant to the right of the midline thus preventing tension against the suture line. Appendectomy is usually added as a secondary procedure. If indicated, operative work may be performed on the biliary tract either before or following operation upon the duodenum. The abdomen is closed in layers without drainage unless deemed a necessary adjunct to added procedures.

Postoperative treatment is important. Fluids should be administered parenterally for a period of 72 hours. A continuous suction siphonage apparatus, modified from that suggested by Wangensteen and Paine<sup>12</sup> is employed to keep the stomach free from all secretion. This prevents postoperative gastric retention and maintains a non-acid medium in the stomach as denoted by frequent testing with congo-red indicator paper. Tension on suture lines in the extremely important early period of healing is avoided. After the third day the patient is given liquid and soft foods such as junket, jello, custards, then cooked cereals—evaporated milk formula. The dietary is subsequently increased

in accord with the medical principles employed in management of ulcer cases. After a period of three months more gastronomic liberties may be permitted.

The accompanying table comprises a summary of our experience in the surgical management of peptic ulcer of the stomach and duodenum. It will be noted that pyloroplasty was performed in 18 patients out of a total of 150 operative cases. Bilroth I type of pylorotomy was used in 5 additional cases of sclerosing, mobilizable, duodenal and pre-pyloric ulcer. Thus it is seen that pyloroplasty or pylorotomy seemed to be the operation of choice in one case in six or approximately 16%. Gastroenterostomy was done in 88 cases or 58.6%. Relief of symptoms by both methods is uniformly good. One patient on whom pyloroplasty was done for bleeding duodenal ulcer had the misfortune to suffer with additional hemorrhage three years following operation, since which time there has been no further trouble. In the event he suffers with recurring bleeding, re-operation will be advised and partial gastrectomy performed. There was no mortality in the series of cases upon whom pyloroplasty was done. The mortality rate for gastroenterostomy was 2.3%. The postoperative recovery in the pyloroplasty patients was uniformly without incident. In five of the patients, cholecystectomy was performed in addition with equally smooth postoperative course. The end results in pyloroplasty have been uniformly satisfactory and this procedure occupies a place of great importance and usefulness in the surgical treatment of duodenal ulcer and associated lesions in the right upper quadrant.

#### SUMMARY AND CONCLUSIONS

1. A series of cases of peptic ulcer of the duodenum and stomach treated by various surgical methods is reported.
2. The indications and advantages of certain operative procedures in surgery for duodenal ulcer are discussed.
3. The advantages of trans-nasal suction siphonage in the postoperative management of patients undergoing gastric operations are reaffirmed.
4. The importance of specialized knowledge and training and experience in the proper selection of surgical procedure for duodenal ulcer is stressed.

5. The technic of pyloroplasty is described.
6. Pyloroplasty has a definite and important place in the surgical management of duodenal ulcer because of its more physiologic nature and its comparatively greater freedom from im-
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ANALYSIS OF METHODS SURGICAL AND RESULTS IN PROCEDURES FOR PEPTIC ULCER

Operation	No. of Cases	Symptom Free	Incomplete Relief Persistent Dyspepsia (mild)	Hospital Deaths Following Operation	Per cent Operative Mortality	Remarks
Gastro-Enterostomy .. . . .	88	81	7	2	2.3	Death in Cases Due to Vicious Circle and Intestinal Obstruction
Pyloroplasty .....	18	16	1	0	0	Patient With Poor Result (Bleeding) Refuses Re-operation
Bilroth I Pylorectomy....	5	5	0	0	0	All Patients Entirely Free of Symptoms
Closure of Perforation and Drainage .....	20	12	3	2	10	Deaths from Peritonitis Due to Delay in Getting Operated Upon
Excise Jejunal Ulcer.....	1	1				Followed Gastro-enterostomy Done Elsewhere in Presence of Acute Perforation
			Complain of Peristaltic Rushes			
Gastric Resection .....	18	16	2	1	9.2	Eight Patients Proved to Have Malignant Ulcer
		Approximately 90% Complete Symptomatic Relief	Approximately 10% Incomplete Relief or Poor Results			
Total Cases .....	150	130	13	5	3.3%	Average Per cent Operative Mortality for Whole Series

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mediate operative mortality, absence of complications and satisfactory end results.

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My thanks are due the Soper Mills Gastro-enterology Clinic for permission to use their files and follow up records on many of the patients presented in this paper.

THE DIAGNOSTIC EXAMINATION

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Efficiency in diagnosis and conservation of time are two major factors determining the technique of a general examination. The general method of approach and the value of information obtained from routine laboratory tests and expensive instruments of precision demand periodical reconsideration both from a practical and economic standpoint.

History. If we consider the history in such



a general examination, we know it is universally accepted as of the highest value, and our experience fully confirms this view. Yet, in a busy office, one must strike somewhat of a medium between the detailed history form as taught to the interne and the medical student and used in a teaching hospital and the brief notes on a casual office case. The past history can assume a more or less routine form which can be delegated to a well trained registered nurse or even to an intelligent lay assistant who has been personally educated to the methods of the individual physician. For our purposes, we have a form which fairly completely takes in the phases of past illnesses, accidents, and operations with inquiry into such additional data as we have found valuable, such as all information possible about previous examinations and former x-ray films. The social history is condensed to a brief extract of travels, habits, marital state. The family history contains a slight deviation from the standard method in that we go into the glandular characteristics of the antecedents, whether they were tall and thin or short and stubby, the presence of goiter, excessive overweight, nervous breakdowns, number of children, and relative position of the patient in the series.

For the present illness, we have devised a form, the original idea for which was given to us at the Lahey Clinic. In taking the present illness, the usual entrance complaints are set down with their duration, and then an attempt is made to build up syndromes from the patient's replies. Along the left hand column of the sheet, common symptoms referable to the various systems of the body are detailed where they can be checked or crossed out, thus saving a great deal of time and manual effort. Considerable stress is placed on the nervous system because of the frequent simulation by neurotic complaints of surgical syndromes. Investigation here is on a tripartite front. Symptoms are classified under mental, visceral, and sensory-motor headings. In addition, environmental factors are inquired into. An attempt is made to classify the personality type, if abnormal, from this information and the type reaction, such as anxiety state, hysteria, psychasthenia, neurasthenia, etc.

*Physical Examination.* The physical examination, in addition to the ordinary things, must

stress certain neglected phases which will enable us to see our patients and their aches and pains in an entirely different light. I refer to postural considerations and the glandular earmarks. The relationship of posture to bodily pains in the abdomen or elsewhere and their recognition is a great help in the treatment of many cases and will prevent much unnecessary surgery. The recognition of the glandular makeup, particularly the common hypogonad type because of their visceroptotic habitus, is important.

A case in point to illustrate the necessity of recognizing the visceroptotic habitus is that of a patient, female, aged 28 years, who consulted me first on October 9, 1934, complaining of floating kidneys. For five years, she had had a dull pain in the left lumbar region, was very much underweight, nervous, exhausted readily, and had menstrual difficulties. She had been subjected repeatedly to cystoscopies for dilatation of "strictured" ureters. An intravenous pyelogram by me revealed ptosed kidneys, a part of her generalized visceroptosis and poor posture. An increase of 28 pounds in weight by means of milk and cream, rest, exercises to improve the posture completely relieved her nervousness, and all back-ache disappeared.

The first inspection, then, should stress the general appearance of the patient, standing and completely stripped. Neuromuscular tension should be noted while talking to the patient and obtaining the history to help evaluate any neurotic basis. The patient's posture, nutrition, muscles, glandular characteristics, varicose veins, and feet are noted standing up, also the condition of the skin and hernias. Foot impressions are made on every patient and preserved with the record for comparison of the results of treatment where abnormal conditions are found.

*Laboratory.* For surgical diagnosis, we might consider the subject under the acute and chronic classifications. In the acute conditions, we are concerned chiefly with the local examination and such general features and brief laboratory examinations as help to determine the surgical risk. A point which experience has taught me, however, is that these minimal laboratory procedures, urinalysis, red blood count, total white blood count, Schilling differential count, and hemoglobin, must not be neglected. The slight time necessary to obtain a urinalysis and blood exam-

ination may save many personal regrets and untold misery to the patient.

A case in point illustrating the necessity of insisting upon the minimal laboratory examinations is that of a man fifty years old who had been treated in a hospital for several days for a sore throat. I was called in consultation and found him *in extremis* from an acute laryngeal obstruction. No urinalysis or white blood count had been done. An attempt was made to get a specimen, but he could not void. A tracheotomy was performed at once under local anesthesia. Urine was then secured by a catheter and a huge amount of sugar found. Death occurred in coma a few hours later in spite of large doses of insulin.

In the chronic case, which may not be so clear cut and in which a careful sifting out process must be made to separate the chronic medical conditions, chiefly neuroses, from the conditions amenable to surgery, a careful and detailed examination of reasonable thoroughness must be made. The careful diagnostician must develop a systematic examination technique in order to prevent errors of omission.

Diagnostic errors crop up where such a system is not followed or where there is lack of personal contact. An illustration of the above is shown by two recent cases. The first, a male, aged 47 years, was seen on July 9, 1935. He had been examined previously by two physicians; one told him he had an enlarged gall bladder and said that the x-ray pictures showed trouble. In another very good clinic, the patient had pictures taken of the gall bladder and stomach and was told that there was nothing wrong with him and that the whole condition was a nervous one. That was in spite of the fact that he had a large mass in the right upper quadrant which should have suggested an enlarged gall bladder to any intelligent examiner. The fallacy here was that the head of the clinic did not examine the patient's abdomen. The roentgenologist fluoroscoped him but probably never touched the abdomen except with heavily gloved examining fingers. The clinician attempted to give advice without a personal examination of the patient. A second case in point is that of a female, aged 42, seen September 17, 1935, who came in complaining of swelling in the lower abdomen and nervousness. She had had

a history of three previous abdominal operations with much choking in the throat and smothering in the chest and had the appearance of corpulency. In a well known clinic, she was put down as neurotic and told that she was getting fat, although a pelvic examination by myself revealed a fibroid tumor reaching to the umbilicus. Undoubtedly, in that case also, poor correlation of the various examinations was made.

A not uncommon error in diagnostic work is a neglect of laboratory measures which are well known and will require only a slight amount of time but will differentiate a pregnancy from a tumor in the abdomen. I refer to the Aschheim-Zondek test in the early months of pregnancy and a good flat film after the fourth month. It is important in diagnosis to make frequent examinations with the patient stripped, and also a great mistake to minimize any patient's complaints and not to carefully note them all by detailed notes at every visit. The only way this can be consistently done is by dictating to a trained assistant, for the physician will not or cannot spend the time to make adequate case notes himself in a busy practice.

My attitude towards x-ray study is the feeling that too much is delegated to the hospital department and to non-medically trained technicians; the physician is apt to accept complacently such reports as final. I can see no reason why the average surgeon cannot become proficient in fluoroscoping stomachs, appendices and colons as well as or better than the x-ray man. He is expected to make a diagnosis with the educated finger tips in palpating the abdomen. Should he not better be able to feel when he has sight added to his touch? The only things that militate against this in the average hands are the time, the expense, the space and the natural resistance to learning a new procedure or mastering a new technique.

All recognized laboratory procedures should be available and exhaustively investigated where a lead is given as to a helpful procedure, but an effort must be made to avoid useless routine work. Routine work, though, for thorough diagnosis, to my mind has an irreducible minimum. For instance, I stress the great importance of determining renal function in surgical diagnosis. It is true, the blood count is important, but its information is obvious when it is abnormal.



The same holds true of the tuberculin test, the metabolic test, the Kahn test, the coagulation time, and sedimentation time, all of which we consider routine. The ordinary urinalysis, even a 24 hour specimen, may pass over slight grades of renal insufficiency, and the ordinary blood chemistry may overlook slight impairment, although the phthalein functional test is fairly reliable in picking up early trouble. We have a rule that any surgical patient over 40 years must have a Mosenthal renal functional test and any younger patient where the kidneys are suspected from past history or where the routine 24 hour specimen reveals a low specific gravity or a nycturia. Minimum routine laboratory procedures in the chronic cases, as mentioned above, must be supplemented by additional tests and the examiner be sufficiently familiar with them to interpret them and know when they are indicated. I refer to blood urea, blood sugar, intravenous pyelography, intravenous gall bladder dye, duodenal drainage of Meltzer, bacteriological smears and cultures, the electrocardiogram, gastric analysis, stools, sputum examination, blood typing.

We should see the patient as a whole from a medical standpoint as a physician, and secondarily, as a surgeon, as that is merely a mode of therapy. Diagnosis in general surgery should know no limitation as to field. More patients coming to the surgeon turn out to be medical cases than surgical. Undue haste in making any examination may be responsible for a post-operative death. Over specialization of thoughts to see every patient surgically is a wrong attitude. A great help for me is to study the record carefully when complete, then, make a brief written summary arriving at a final diagnosis in an unbiased manner only on the evidence therein contained while freshly correlated in the mind.

Such an examination is detailed, has multiple phases, and requires trained assistants and an adequate record system. The form should be routine, but not fixed. It is a constantly fluctuating thing which is continually adding and detracting as experience throws out the worthlessness of a test and adds a new one. For example, I made blood ureas consecutively on 300 patients who submitted to complete examinations before I would decide that the test was worth-

less in the ordinary course of work. Such a technique can only be developed by personal experience, depending upon the individual man's training and type of practice. Commercial blanks for this purpose are of but little value.

We should think of ourselves as physicians primarily who are practicing surgery. Webster's academic dictionary defines a physician as follows:

"A person skilled in physic, or the art of healing; a doctor of medicine."

Surgery still contains a large element of psychotherapy, a phase of the art of healing. Reports in the literature of successful series of cases must be read between the lines in the personality of the surgeon. The successful surgeon is also a great physician. If you don't believe it, make the rounds some morning with a good surgeon and listen to him practicing medicine in dealing with his patients. Yet, this is precisely the element that never appears in the reports.

*Summary.* A careful routine method of examination, comprehensive but practical, is necessary if we are properly discharging our responsibilities when we assume the making of a general examination. Useless tests and multiplication of laboratory procedures is to be guarded against. Recognition of glandular characteristics and postural deviations on the part of the physician will clear up some puzzling causes of unrelieved symptoms. A personal study and summary of the whole record is necessary to correlate the various findings and arrive at a correct diagnosis.

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## TRAUMATIC TONSILLECTOMY

Two Cases

LAWRENCE J. LAWSON, M. D.

EVANSTON, ILL.

Case 1: R. J., aged three years, was riding a tricycle, from which the rubber handles had been removed from the handle bar leaving the sharp circular steel ends exposed. The tricycle overturned throwing him in such a manner as to cause the exposed tubular steel handle to shoot into his mouth. None of the teeth were damaged. The left anterior pillar was struck tearing it slightly. The left tonsil was divulsed, producing a clean separation with a smooth capsule, leaving only a small lingual attachment. Under gas induction ether anesthesia, the tonsil was severed from its small lingual attachment and the small tear in the anterior pillar repaired. The other tonsil and a hypertrophied adenoid

mass were removed. The end result was a symmetrical, normal appearing throat.

Case 2: H. L., aged 8 years, was second in a train of three sleds. The first sled struck an elevation which elevated one runner and retarded its progress. The second sled overtook the first and the high runner went into the boy's mouth. The teeth were not injured. There was moderate tearing of the right anterior pillar. The right tonsil was completely separated except for a small lingual attachment, and the capsule was smooth. The muscle in the tonsil fossa was slightly torn. A slightly deeper injury might have seriously involved the deep vessels of the neck. The anterior pillar was repaired and two sutures were taken in the torn muscle in the center of the tonsil fossa. The opposite tonsil and a hypertrophied adenoid mass were removed. The throat healed without infection. The end result was a symmetrical, normal throat.

### OTOSCLEROSIS IN IDENTICAL TWINS

George E. Shambaugh, Jr., Chicago (*Journal A. M. A.*, April 6, 1935), adds three more instances to the two instances reported previously of otosclerosis in identical twins. He states that if the premise were strictly correct that the hereditary anlage is exactly equal in a pair of identical twins, then one could say with assurance that there are external influences which can affect the age of onset and rate of progress of clinical otosclerosis, and this would be saying a great deal. However, there is one disturbing fact that must be taken into account and that is that identical twins develop from the same egg, but from different halves of the egg, and their hereditary environment may differ slightly just as the two halves of any person are slightly different. Thus, otosclerosis often begins first in one ear and may occasionally become very advanced in this ear before the onset of progressive deafness in the opposite ear. The difference in the twins may correspond only to the difference in the two ears of any one with otosclerosis. However, the fact that the lesion developed first, in every instance, in the twin who was much more susceptible to head colds is at least suggestive evidence that head colds are an activating influence on otosclerosis. On the basis of the observations in identical twins head colds apparently have an activating influence on otosclerosis similar to the influence of pregnancy. This conclusion coincides with clinical experience in the majority of patients with otosclerosis. It does not seem to be due to direct extension of inflammation through the eustachian tubes, though this possibility must be considered. The effect may be entirely systemic, by blood stream transmission of toxins. Further observation of otosclerosis in identical twins will confirm or refute these conclusions. Meanwhile, one can feel justified in any reasonable measures to reduce the susceptibility to head colds in persons with otosclerosis.

### IT IS MORE BLESSED TO GIVE THAN TO RECEIVE

Any progress made in the art of medicine, and any success that may have been achieved by any of its

voluntaries, is due to the unselfishness with which those who knew gave to those who knew not. The only way that we, as physicians, can repay our obligations to the great profession of which we are a part, is to contribute our mite to the common fund of medical lore. Make your contribution now!—W. A. H.

## Society Proceedings

### CHICAGO MEDICAL SOCIETY HOBBY SHOW

*April 1, 1936*

The first hobby show put on by the Chicago Medical Society proved a most successful affair. In spite of the blizzard that ushered April in almost 200 attended the dinner and the large Spanish Room of the Medical and Dental Arts Club was thronged with interested spectators from six o'clock to midnight, more than 800 visiting the show. The exhibits were diversified and enlightening, and a spirit of good fellowship was prevalent.

During the evening in the West Room of the Club the motion picture of "Wings Over Mt. Everest" was exhibited, followed by some excellent motion pictures made by Dr. and Mrs. Julius H. Hess, "Hunting With a Camera in the Rainy Lake District," catching deer, moose, bear and caribou unawares; also black bass, walleyed pike and muskellunge, "where mother has to stand the gaff as well as father when she goes on such a trip."

Following the picture show President Hess introduced Dr. Morris Fishbein, who spoke on "Doctors and Their Hobbies." In closing Dr. Fishbein expressed the opinion that the hobby show put on by the Chicago Medical Society compared favorably with some of the best shows previously put on in this country and elsewhere.

A complete list of exhibitors and exhibits will be found below:

A. H. Andrews, Sr., 30 North Michigan Avenue: Archery, bows and arrows made by himself.

Benedict Aron, 6155 South Kedzie Avenue: 350 souvenir spoons.

Joseph Beck, 185 North Wabash Avenue: A schematic drawing of a hobby horse demonstrating his various hobbies.

E. A. Brucker, Wade Harker, John S. Nagel, 4458 West Madison Street: Pictures of hunting and fishing trips, head of a mountain sheep, walleyed pike.

Walter C. Burket, 636 Church Street, Evanston, Illinois: Words and music, composed by himself.

Eugene Carey, 30 North Michigan Avenue: Etchings.

H. W. Cheney, Guy M. Cushing, Hugh N. MacKechnie, Hiram J. Smith: Lawn bowling, pictures, balls, etc.

E. L. Cornell, 122 South Michigan Avenue: Stamp collection.

M. H. Cottle, 30 North Michigan Avenue: Chinese pottery, child portraiture.

H. Hoyt Cox, 2376 East 71st Street: Water colors and etchings.



S. M. Edison, 185 North Wabash Avenue: Bird's eggs, together with pictures of birds.

Walter Fischer, John H. Gilmore, 185 North Wabash Avenue: Wood sculpture, photography.

C. F. Friend, 1601 West Garfield Boulevard: Rex rabbits. Exhibit of live rabbits, also furs.

H. Fremmel, 1001 North Damen Avenue: Oil painting of Dr. Fremmel, painted by himself.

A. H. Geiger, 854 Fullerton Avenue: Drawings.

A. J. Giacobe, Oak Forest, Illinois: Pictures painted on glass.

J. D. A. Gatsos, 25 East Washington Street: Collection of paintings.

Emery Grimm, 55 East Washington Street: Exhibit of caricatures of Viennese professors and modern portraits.

Emil Grubbe, 6 North Michigan Avenue: Stamp collection.

F. P. Hammond, 6138 Cottage Grove Avenue: Farm. Pictures, charts, etc.

Clarence Hennen, 7602 Paxton Avenue: Philippine weapons.

R. M. Hutchison, 4046 Armitage Avenue: Wood sculpture.

Evaline St. Croix Hash: Silver fox farm. Exhibited three scarfs and literature together with photographs. Spice cake.

Roy Kegerreis, 1150 North State Street: Paintings and drawings.

Maximilian Kern, 55 East Washington Street: Pictorial photography. Some in natural colors.

J. D. Kirshbaum, Cook County Hospital: Stamp collection.

M. Koenig, 1415 Rosemont Avenue: Pyrography.

E. Levisohn, I. Sherry: Photography. Cabinet work, drawings and cartoons.

A. Levinson, 30 North Michigan: Medical history in medallions.

Julius Levy, 3354 West Roosevelt Road: Doll house—plaster work, wood carving—statues, Coach and Four.

Arno B. Luckhardt, 5216 Greenwood Avenue: A neglected chapter in the history of anatomic illustration. Anatomical manikins of French, German and Italian construction. Period of 1700 to 1800.

Carolyn MacDonald, 30 North Michigan: Interior—runmaging and decorating. Pictures.

E. T. McEnery, 4458 West Madison Street: Photography.

William A. Mann, Sr., 30 North Michigan Avenue: Doll furniture.

Frank J. Novak, 30 North Michigan Avenue: Cabinet work.

Edward H. Ochsner, 2155 Cleveland Avenue: Hickory Point Farm.

H. G. Ohls, 1618 Juneway Terrace: Copper etchings.

Stanley Przygocki, 4868 Werner Avenue: Stamp collection.

George Marchmont Robinson, 8151 Cottage Grove Avenue: Oil paintings.

Arthur Sandler, 2700 Devon Avenue: Coin collection.

Leslie W. Schwab, 1811 East 63rd Street: Enlarged photographs. Scenic pictures.

J. J. Singer, 3605 Lawrence Avenue: Oil paintings and statues.

Robert Sonnenschein, 180 North Michigan Avenue: Collection of portraits and engravings of doctors, old books on ear, nose, throat and acoustics.

S. C. Stanton, Hinsdale, Illinois: Stamp collection.

Frederick Stenn, 841 East 63rd Street: Specially constructed phonograph.

Frederick C. Test, 30 North Michigan Avenue: Bird banding in Chicago. Pictures, bands, literature.

F. P. Thompson, 3650 Lake Shore Drive: African hunting trip. Pictures and trophies.

Max Thorek, 850 Irving Park Boulevard: Creative photography.

C. K. Timmons, 4753 Broadway: Cartoons.

Bertha VanHoosen, 25 East Washington Street: Pictures of distinguished sons and daughters of medical women.

## KANKAKEE COUNTY

The Members of the Kankakee County Medical Society were guests of Dr. Robert R. Smith, managing officer of the Kankakee State Hospital, and Mrs. Smith at a six o'clock dinner on the evening of April 9. The meeting was also attended by physicians from Ford, Iroquois and Livingston Counties. About 60 physicians were present.

The meeting was opened with a short address by the Hon. A. L. Bowen, director of the Department of Public Welfare, Springfield, on the subject, "Society's Fight Against Nervous and Mental Diseases." Mr. Bowen also announced that Dr. Isabel Weaver of the staff of the Kankakee State Hospital had been awarded first honors for her interpretation of the book, "Asylum," by William Seabrook.

The scientific program was in charge of Dr. A. A. Low, assistant professor of neuro-psychiatry of the Medical department of the University of Illinois, and who is also assistant alienist of the Department of Public Welfare, assisted by members of the hospital staff; presented and discussed cases to illustrate types of mental and nervous disorders more often seen in their early manifestations by the general practitioner.

C. A. PERRODIN, Secretary.

## Marriages

RICHARD L. J. KEMEL to Miss Margaret Pennington, both of Chicago, March 23.

RAYMOND J. KENNEDY to Miss Bernice Elaine Sitar, both of Joliet, Ill., February 11.

## Personals

Dr. Jacob Frank observed his eightieth birthday, March 16.

Dr. John A. Wolfer, Chicago, addressed the Peoria City Medical Society, March 17, on "Carcinoma of the Rectum and Colon."

Dr. Byrl R. Kirklin, Rochester, Minn., among others, presented "A Roentgen Study of the Stomach and Duodenum After Operation" before the Chicago Roentgen Society, April 9.

Dr. Mary G. Schroeder discussed "The Diagnosis and Treatment of Psychoneurosis" before the Chicago Council of Medical Women, April 3.

At a meeting of the Kankakee County Medical Society in Kankakee, March 12, Dr. Louis W. Sauer, Evanston, discussed whooping cough.

Dr. J. P. Greenhill read a paper on Problems in Obstetrics and Gynecology before the Kalamazoo Academy of Medicine, April 21.

Dr. Roland M. Klemme, St. Louis, addressed the Vermilion County Medical Society, March 3, on "Traumatic Injuries of the Central Nervous System and Their Emergency Treatment."

Dr. Paul C. Schnobelen, St. Louis, addressed the Madison County Medical Society in Highland, March 6, on bone tumors, and Dr. Leith H. Slocumb, St. Louis, rectal diseases and their treatment.

The Adams County Medical Society was addressed in Quincy, April 13, by Drs. Bernard Portis and Max Cutler, Chicago, on "Acute Surgical Abdominal Conditions" and "Recent Advances in the Treatment of Cancer" respectively.

The Chicago Society of Internal Medicine was addressed, March 23, among others, by Dr. Harry A. Singer on "Pyrexia Due to Gastric Carcinoma."

Speakers before the Hancock County Medical Society, March 2, were Drs. Harold Swanberg and Walter M. Whitaker, Quincy, on "Modern Treatment of Cancer of the Uterus" and clinical use of electrocardiography respectively.

At a meeting of the Perry County Medical Society in Duquoin, March 5, Dr. Eugene Lee Shrader, St. Louis, discussed "Coronary Disease" and Dr. James L. Mudd, St. Louis, "Surgical Treatment of Lung Suppuration."

Dr. Antoine Lacassagne, associate director of the Curie Institute of Paris, lectured at Michael Reese Hospital, March 10, on "Modern Con-

ception of Radiation in the Treatment of Cancer."

At a meeting of the Chicago Gynecological Society, March 20, Dr. Harold H. Hill, Oak Park, Ill., among others, discussed "The Value of the Sturmdorff Cone for Biopsy Material in the Detection of Early Carcinoma of the Cervix Uteri."

At a meeting of the Chicago Pathological Society, April 13, speakers included Drs. Paul E. Steiner on "Malignant Lymphogranulomatous (Hodgkin's Disease) Cirrhosis of the Liver" and Sol R. Rosenthal, "Tissue Lymphocytes in the Prognosis of Hodgkin's Disease."

At a meeting of the Chicago Surgical Society, April 3, speakers included Drs. Robert B. Malcolm on "Surgery of Salivary Glands"; Graham A. Kernwein, "Effect of Starvation on Fracture Healing," and Sumner L. S. Koch, "Osteomyelitis of the Bones of the Hand."

Speakers before the Chicago Society of Industrial Medicine and Surgery, March 25, were, among others, Drs. James H. Hutton on "Endocrinology in Industrial Medicine"; Philip H. Kreuscher, "Surgery of Arthritis," and Roscoe G. Leland, "Changes Confronting Modern Medicine."

At a meeting of the St. Clair County Medical Society in Belleville, April 1, Dr. Edward W. Cannady, Jr., East St. Louis, discussed "Diagnosis and Treatment of Cardiac Arrhythmia." At the session in East St. Louis, April 2, Dr. James S. Templeton, Pinckneyville, addressed the society on "Responsibility of the Individual Doctor to His Profession."

Dr. Archibald L. Hoyne presented a paper before The Nebraska State Medical Association at Lincoln on April 9. His subject was "Treatment of Meningococcic Meningitis Without Intraspinal Therapy." He also addressed The Northern Tri-State Medical Association at Fort Wayne, Indiana, on April 14. His topic was "Progress in the Management of Contagious Diseases."

Dr. Chester C. Guy, of Chicago, addressed the staff of the DeKalb Public Hospital and DeKalb County Medical Society on Pathology of Breast Tumors, April 7, at DeKalb, Illinois.

Dr. Q. U. Newell, Professor of Gynecology, Washington University, St. Louis, gave an illustrated lecture on "Cancer of the Uterus" before



the Madison County Medical Society at St. Joseph's Hospital, Alton, Friday, April 3, 1936. Thirty-six physicians were present.

### News Notes

—Dr. Charles F. Geschickter of Johns Hopkins Hospital, Baltimore, conducted a tumor clinic at Silver Cross Hospital, Joliet, March 25. This was the third annual clinic of its kind. The first was conducted by the late Dr. Joseph C. Bloodgood, Baltimore, and the second by Dr. Geschickter.

—Charles Judson Herrick, Sc.D., professor emeritus of neurology, University of Chicago, delivered the fourteenth Pasteur Lecture of the Institute of Medicine of Chicago, Friday evening, April 24, in Thorne Hall on McKinlock Campus, Northwestern University. His subject was "Neurobiological Foundations of Modern Humanism."

—At a meeting of the Chicago Gynecological Society, April 17, Dr. Elmer L. Sevringhaus, Madison, Wis., discussed "Current Endocrine Problems in Gynecology" and "A Study of Women with Irregularities of Menstruation"; Carl R. Moore, Ph.D., of the University of Chicago, and Dr. Ralph E. Campbell of the University of Wisconsin Medical School, Madison, discussed these papers.

—Dr. Victor G. Heiser, formerly director of Far East for the International Health Board, Rockefeller Foundation, delivered the Gehrman Lectures for 1935-1936 in the Medical and Dental Laboratory Building, 1853 West Polk Street, April 29-30 and May 1. The titles of the lectures were "Coordination of Disease Control Throughout the World by the League of Nations"; "International Research in Leprosy," and "Dietary Opportunities in Preventive Surgery."

—The Institute for Psychoanalysis of Chicago announces the following lectures and seminars during its third quarter of the current year:

Mortimer Adler, Ph.D., Methods and Subject Matter of Psychology.

Drs. Franz G. Alexander and Thomas M. French, alternately, Psychoanalytic Interpretation of Psychotic Cases.

For the members of the Chicago Psychoanalytic Society and the candidates of the in-

stitute only, the following is offered:

Dr. Alexander, Clinical Conferences.

Dr. Alexander, Termination of Analyses (seminar on technic).

Dr. French, Seminar on Review of Psychoanalytic Literature.

Registration for the courses should be made in advance. Fees vary for the courses. The first session began April 4, but new courses are scheduled to begin in subsequent weeks, extending into June. Address the Institute for Psychoanalysis, 43 East Ohio Street, Chicago.

—Rear Admiral Norman J. Blackwood has announced his retirement as medical director of Provident Hospital, after more than five years service there. He graduated at Jefferson Medical College, Philadelphia, in 1888 and entered the navy in 1889, advancing through the grades until 1929, when he was retired as a rear admiral. Provident Hospital, a training center for Negro medical workers, is housed in the remodeled home of the old Chicago Lying-In Hospital. The development and maintenance of the center was made possible by a \$3,000,000 fund subscribed in 1930, \$1,000,000 of which was a gift from the General Education Board of the Rockefeller Foundation. Dr. John W. Lawlah, director of the institution's x-ray department, has been appointed to succeed Dr. Blackwood. He is 32 years of age and graduated from Rush Medical College in 1932.

—The twenty-seventh annual meeting of the Illinois Tuberculosis Association was held at the Orlando Hotel, Decatur, April 6-7. Dr. William A. Hudson, chief, division of thoracic surgery, Grace Hospital, Detroit, conducted a clinic on intrapleural pneumolysis. The speakers on the program included:

Dr. David O. N. Lindberg, Decatur, Role of the Chest Roentgenogram in Tuberculosis.

Dr. Robinson Bosworth, Rockford, Essential Considerations Affecting the Selection of Patients Who May Profit Most from Sanatorium Treatment and Primary Reasons for Eliminating Certain Groups from the Sanatorium.

Dr. Arthur S. Webb, Wheaton, Basic Elements in Sanatorium Treatment.

Dr. Herbert L. Pettit, Morrison, Problems Facing the Physician Treating Tuberculosis in the Home.

Dr. Irenaeus L. Foulon, East St. Louis, A. Practical Approach to the Tuberculosis Problem in the Large Counties of Southern Illinois Which Have a Large Negro Population.

At the annual banquet Tuesday evening, Dr. Gerald B. Webb, Colorado Springs, gave "An Outline of the History of Tuberculosis."

—The Faculty and Alumni of Northwestern University Medical School will hold their annual reunion on June tenth, eleventh, and twelfth. An exceptionally interesting program awaits the visiting alumnus this year. All alumni are especially urged to attend the Annual Faculty-Alumni Dinner on the evening of Friday, June 12. Headquarters, Room 403, Montgomery Ward Building, McKinlock Campus, Chicago, Illinois.

—As a part of the general reorganization of the department of psychiatry at Michael Reese Hospital, Dr. Martha Goldinger Wilson MacDonald has been appointed in charge of child psychiatry and Dr. Milton L. Miller, resident psychiatrist in charge of the inpatient service. Dr. MacDonald is a graduate of the University of Pittsburgh School of Medicine and has been associated with the Danvers State Hospital, Danvers, Mass., the Illinois Institute of Juvenile Research and the Payne-Whitney Psychiatric Clinic, New York. Dr. Miller graduated from Harvard Medical School. He served on the staff of the Enoch Sheppard-Pratt Hospital in Baltimore and, under a fellowship of the Rockefeller Foundation, studied one year at Queen Square Hospital, London, and one year at the Payne-Whitney Psychiatric Clinic, New York. Dr. Jacob Kasanin, formerly clinical director of Rhode Island State Hospital for Mental Diseases, Howard, R. I., was recently appointed director.

## Deaths

DONALD PUTNAM ABBOTT, Chicago; Rush Medical College, Chicago, 1910; a Fellow A. M. A.; associate clinical professor of medicine at his alma mater; intern at the Cook County Hospital, 1910-1911; did graduate work in Vienna in 1914; member of the Central Society for Clinical Research, Institute of Medicine of Chicago, and the Society of Internal Medicine of Chicago; served in the medical corps of the U. S. Army in France during the World War; author of the chapter on "Carcinoma of the Stomach" in Tice's System of Medicine; aged 51; attending physician to the Presbyterian Hos-

pital, where he died, March 26, of pulmonary embolus following bronchopneumonia.

JOHN EDWARD HALL ATKEISSON, Chicago; Vanderbilt University School of Medicine, Nashville, 1897; a Fellow, A. M. A.; staff anesthetist at Grant, St. Mary of Nazareth, Columbus and Lutheran Memorial hospitals; aged 61; died at Grant hospital, March 1, of myocarditis and coronary sclerosis.

GEORGE TROY BAILEY, Chicago; Northwestern University Medical School, 1894; a Fellow, A. M. A.; formerly assistant medical director New York Life Insurance Company; aged 71; died, January 31, of coronary sclerosis.

ROY EDGAR BARROWS, Cairo, Ill.; Northwestern University Medical School, 1909; a Fellow, A. M. A.; Member of staff, St. Mary's Hospital, Cairo; connected with U. S. Public Health Service for 20 years; aged 51; died while on visit to Mishawaka, Ind., March 20, of coronary thrombosis.

HENRY ANDREW BENZ, Northbrook, Ill.; Rush Medical College, Chicago, 1888; aged 72; died, Dec. 7, 1935, in Chicago, of prostatic hypertrophy.

WILLIAM BONNAR, Chicago; Medical Faculty, Trinity University, Toronto, Canada, 1882; a practitioner in Chicago over 40 years; graduate in law of Kent College; aged 81; died, February 29, of chronic myocarditis.

DAVID PAUL CALDWELL, Sidell, Ill.; Hahnemann Medical College, 1916; member of Illinois State Medical Society; aged 43; died suddenly while attending a patient, February 2.

THOMAS ALLEN CLARK, Mount Vernon, Ill.; St. Louis University School of Medicine, 1904; member of the Illinois State Medical Society; past president and secretary of the Jefferson-Hamilton County Medical Society; aged 61, died, January 25, in the Missouri Baptist Hospital, St. Louis, of acute dilatation of the heart and ulcer of the duodenum.

ROBERT HANSON CRAIG, Charleston, Ill.; Louisville Medical College, 1900; a Fellow, A. M. A.; Secretary Coles County Medical Society 15 years; member Aesculapian Society of Wabash Valley; New York Central Association Railway Surgeons; on staff of Charleston Hospital; Chairman Board of Health several terms; aged 62; died, February 20, of septicemia from wound received when operating on case of purulent cellulitis.

DANIEL H. CUNNINGHAM, Chicago; Jefferson Medical College, Philadelphia, 1893; practitioner in Chicago 41 years; aged 71; died, December 28, 1935, of chronic nephritis.

NETTIE D. MOREY ERRANT, Chicago; Woman's Medical College, Chicago, 1895; aged 79; died, January 19, of cronicopneumonia.

HENRY STEPHEN FLETCHER, Chicago; Dearborn Medical College, Chicago, 1907; formerly on the staff of the Welles Park Hospital; aged 63; died, January 20, in the Augustana Hospital, of ascending urinary infection and prostatic hypertrophy.

OTTO HERMAN FRIEDMANN, La Grange, Ill.; Rush



Medical College, 1927; surgeon of La Grange post, American Legion; aged 37; died, March 29, in Billings Memorial Hospital, of coronary occlusion.

WILLIAM BERNARD FUNK, Chicago; Dearborn Medical College, Chicago, 1907; University of Illinois College of Medicine, 1910; aged 56; died, in St. Bernard's Hospital, February 4, of chronic myocarditis and chronic nephritis.

LOUIS J. GORDON, Edwardsville, Ill.; St. Louis College of Physicians and Surgeons, 1899; aged 61; died, February 20.

ELIJAH GEORGE HARRIS, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1915; aged 68; died, February 15, of impacted gallstones.

DAVID LEWIS HOLLAND, Chicago; Loyola University School of Medicine, 1917; a Fellow, A. M. A.; aged 55; died, February 18, of chronic myocarditis and chronic nephritis.

FRED AUGUST KARST, Wilmette, Ill.; Hahnemann Medical College and Hospital, Chicago, 1887; a Fellow, A. M. A.; practitioner in Chicago for 50 years; aged 82; died, February 27, of angina pectoris.

FRANK M. KINDIG, Chicago; Northwestern University Medical School, 1894; a Fellow, A. M. A.; aged 75; died January 31, in Wesley Memorial Hospital from fracture of the hip and accidental burns of foot.

TULLY JOSEPH LIDDELL, Chicago; Tulane University of Louisiana School of Medicine, 1912; a Fellow, A. M. A.; executive officer of the United States Marine Hospital, Surgeon in U. S. Public Health Service; aged 49; died, December 22, 1935, of thrombosis of the coronary artery. (34476.)

WILLIS EDWARD LINGLE, Cobden, Ill.; St. Louis College of Physicians and Surgeons, 1894; aged 64; died suddenly March 27.

JOHN RALPH MABEE, Chicago; University of Louisville School of Medicine, 1895; aged 63; died, February 12, in Alexian Brothers Hospital, of diabetes mellitus.

RICHARD FRANKLIN MARRS, Macomb, Ill.; Eclectic Medical College of Cincinnati, 1889; president of McDonough County Medical Society and oldest practicing physician in the county; on staff of Phelps Hospital; aged 74; died at the Hospital, March 18, of myocarditis.

JOHN BENJAMIN MATTHEWS, Blue Mound, Ill.; National University of Arts and Science, St. Louis, 1875; who as a boy, knew Abraham Lincoln, and was in active practice 60 years; aged 86; died suddenly, February 17.

JAMES P. McCORMICK, Winnetka, Ill.; Queens University Faculty of Medicine, Kingston, Ont., 1906; Hahnemann Medical College, Chicago, 1907; a retired Canadian physician; aged 54; died suddenly when visiting a neighbor, December 20, 1935.

JOHN A. McHUGH, Chicago; Harvey Medical College, Chicago, 1901; on staff of Garfield Park Community Hospital, where he died, March 28, aged 63, of hypertensive heart disease.

ALBERT CORYDON McGEE, McNabb, Ill.; Eclectic Medical College, Cincinnati, 1881; a practitioner for

many years who introduced the first telephone in his community; aged 80 years; died in La Salle Hospital, February 20, of pneumonia.

ELLEN MINER, Champaign, Ill.; Keokuk Medical College, 1892; aged 82; died in Manteno State Hospital, October, 1935.

FREDERICK ATKINS MOORE, Chicago; University of West Tennessee College of Medicine and Surgery, Memphis, 1916; aged 46; died Dec. 25, 1935, of carcinoma of the intestine with metastasis to the liver.

EVERETT PEEK, White Hall, Ill.; Chicago College of Medicine and Surgery, 1907; died at the home of his sister, in Houston, Texas, March 21.

FRANK F. PETTY, Lawrenceville, Ill.; Hospital College of Medicine, Louisville, 1902; aged 65; died in Good Samaritan Hospital, Vincennes, February 26, of pneumonia.

NATHAN STARR, Charleston, Ill.; Hahnemann Medical College, 1889; member of Illinois State Medical Society; former president of Illinois State Homeopathic Medical Association; member Aesculapian Medical Society of Wabash Valley; on staff of Charleston Hospital; former president of Board of Education; aged 76; died, March 18, of bronchopneumonia.

ANDRE L. STAPLER, Chicago; Cincinnati College of Medicine and Surgery, 1912; a Fellow, A. M. A.; aged 49; died, February 6, of coronary thrombosis.

CHARLES RAINEY THOMAS, Roodhouse, Ill.; Washington University School of Medicine, St. Louis, 1887; member of Illinois State Medical Society; active in civic affairs; aged 73; died, April 3, of coronary thrombosis.

SAMUEL R. WARD, Richmond, Ill.; Georgetown University School of Medicine; Washington, D. C., 1868; member of the Illinois State Medical Society; formerly mayor, health officer and member of the school board; aged 93; died, January 18, as the result of a fracture of the hip received in a fall.

FRANK FORDYCE WHETZEL, Chicago; Indiana Medical College, 1878; an ex-army surgeon and practitioner in Hyde Park district more than 40 years; aged 77; died, February 13, of coronary thrombosis.

HARRY REGINALD WILLIAMS, Lincoln, Ill.; Loyola University School of Medicine, 1931; staff physician of Lincoln State School; member of Illinois State Medical Society; aged 31; died, March 4, of pulmonary tuberculosis.

ALBERT WILLIS, Metropolis, Ill.; St. Louis College of Physicians and Surgeons, 1904; aged 54; died, March 6, of a heart attack.

OMER M. WILLIS, Metropolis, Ill.; St. Louis College of Physicians and Surgeons, 1898; aged 59; died, January 8.

CHARLES T. C. WILSON, Champaign, Ill.; Cincinnati College of Medicine and Surgery, 1890; retired physician since 1916; aged 71; died, March 24, in Carle Hospital, Urbana, following a cerebral hemorrhage.

JAMES ABRAHAM WOMACK, Equality, Ill.; University of Tennessee College of Medicine, Memphis, 1884; former state senator; aged 76; died, March 30.

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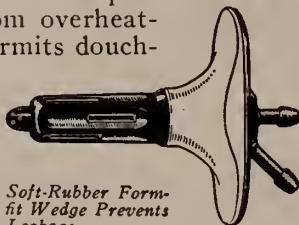
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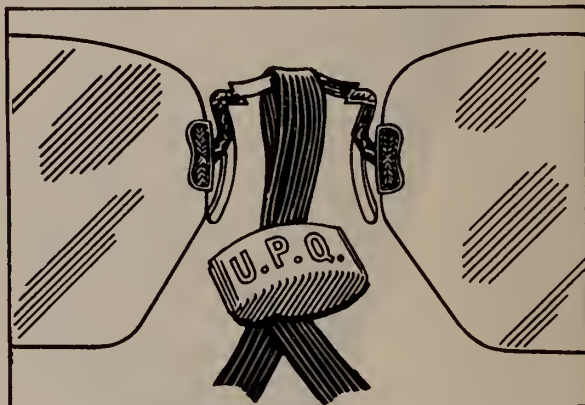
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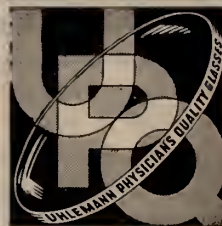


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## Book Reviews

**SURGICAL CLINICS OF NORTH AMERICA.** Issued serially, one number every other month. Volume 16. Number 1. Chicago Number—February, 1936. 356 pages with 78 illustrations. Per Clinic year February, 1936, to December, 1936. Paper \$12.00; Cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company, 1936.

The contributors to this number are Doctors Adair, Baer, Beatty, Chandler, Christopher, Danforth, Falls, Goldstein, Hauser, Jennings, Martin, McWhorter, Oldberg, Doth, Thomas.

**AN ANALYSIS OF THE DE GENERATIONE ANIMALIUM OF WILLIAM HARVEY.** By Arthur William Meyer. Stanford University Press. 1936. Price \$3.00.

**MEDICAL ASPECTS OF CRIME.** By W. Norwood East, M. D. With foreword by the Right Hon. Sir John Simon. Philadelphia. P. Blakiston's Son & Co., Inc. 1936. Price \$6.50.

The author of this work has been concerned with medical aspects of crime, with criminals, and with prison administration, for thirty-six years, and he has replied to this question with a selection of papers and addresses.

**PARENTERAL THERAPY.** By Walter Forest Dutton, M. D., and George Burt Lake, M. D. Illustrated with 90 half tones and line engravings. Springfield, Illinois. Baltimore, Maryland. Charles C. Thomas. 1936. Price \$7.50 postpaid.

This work is intended as a ready reference manual of extra-oral medication for physicians, dentists, pharmacists, chemists, biologists, nurses, medical students and veterinarians.

**THE STUDENT'S MANUAL OF MICROSCOPIC TECHNIQUE WITH INSTRUCTIONS FOR PHOTOMICROGRAPHY.** With 79 illustrations. J. Carrell Tobias. 1936. American Photographic Publishing Co., Boston, Mass. Price \$2.50.

In this work the author has produced a book that will fill a real need in its particular fields. The instructions given in this work are adequate for the use even of the student just starting out upon his excursions into the world of microscopical things, while comprehensive enough for rather advanced students.

**PEDIATRIC NURSING.** By John Zahorsky, M. D. With 144 illustrations in the text and 7 color plates. St. Louis. The C. V. Mosby Company, 1936. Price \$3.00.

"Pediatric Nursing" is an answer to a popular demand for a new book in this field. Nursing educators have felt a need for a text which brings the subject to student nurses in a comprehensive, modern, and understandable way. This text, emphasizing actual nursing care and describing the latest methods that are used, fills this need.

**INTERNATIONAL CLINICS.** A quarterly of illustrated clinical lectures and especially prepared original ar-

ticles on treatment, medicine, surgery and all the specialties by leading members of the medical profession throughout the world. Volume I. Forty-sixth series. Philadelphia, Montreal, London. J. B. Lippincott Company. Price \$48.00.

**THE TRUE PHYSICIAN.** By Wingate M. Johnson, M. D. New York. The MacMillan Company. 1936. Price \$1.75.

This book has necessarily been written from viewpoint of the family Doctor, but it is the hope of the author that any medical man may find in it something of value.

**IN INTRODUCTION TO SURGERY.** By Rutherford Morrison, M. D. and Charles F. M. Saint, M. D. Third edition. Baltimore. William Wood and Company. 1936. Price \$5.00.

The purpose of this book is to aid the student in thinking out for himself the problems presented to him in the wards and in the text books.

**AN INDEX OF DIFFERENTIAL DIAGNOSIS OF MAIN SYMPTOMS.** By various writers. Edited by Herbert French, M. D. Fifth edition with seven hundred and forty-two illustrations of which one hundred and ninety-six are colored. Baltimore. William Wood and Company. 1936. Price \$16.00.

The fact that this work has gone through five editions in a comparatively short time speaks volumes in its favor. In this fifth edition many tests have been omitted purposely, on the ground of unreliability or where reliability has not been established. The author hopes that all those on which reliance can be placed have been included.

The original purpose of the work remains unchanged; it is intended to be a help in arriving at a correct diagnosis in cases in which one or more symptoms are pronounced and yet the real nature of the malady is not immediately clear.

**A TEXTBOOK OF SURGERY.** By American authors. Edited by Frederick Christopher, B. S., M. D., F.A.C.S., Associate Professor of Surgery at Northwestern University Medical School; Chief Surgeon, Evanston (Illinois) Hospital. 1,608 pages with 1,349 illustrations on 730 figures. Philadelphia and London. W. B. Saunders Company. 1936. Cloth. \$10.00 net.

The author states that the dominant plan of this text book is to give the student a concise presentation of surgery which is characterized by the maximum authority.

The subject matter contains the tested and accepted present day principles of surgery. Debateable or incompletely tried methods are not included. Etiology, pathology and diagnosis have properly been stressed, and the correct surgical treatment has been carefully described.

**THE ENDOTOXIC INFECTIONS AND THEIR CONTROL WITH EDWENIL.** Tenth edition. Third revision. Glendale, California. Spicer & Company. 1936.

**THE NORMAL DIET AND HEALTHFUL LIVING.** By W. D. Sansum, M. D., and R. A. Hare, M. D., and Ruth



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Bowen, B. S. New York. The Macmillan Company. 1936. Price \$2.00.

This book is based on the informal talks which Dr. Sansum has given to his patients at the Sansum clinic.

ALLERGY OF THE NOSE AND THE PARANASAL SINUSES.  
By French K. Hansel, M. D. With fifty-eight text illustrations and three color plates. St. Louis. The C. V. Mosby Company. 1936. Price \$10.00.

The object of this monograph is to familiarize the otolaryngologist with the clinical features of allergy as related to the field of otolaryngology, to review the various phases of the subject itself, and to point out the frequent association of the nasal with the other manifestations, particularly asthma, gastrointestinal allergy, allergic skin diseases, and allergic headache.

The monograph also serves the purpose of familiariz-

ing the allergist and the pediatrician with the otolaryngologic phases.

THE ADRENALS. By Arthur Grollman, M. D. Baltimore. The Williams & Wilkins Company. 1936. Price \$5.00.

In the present volume an attempt has been made to analyze the great accumulation of literature on the subject of the adrenals and present a working hypothesis from which the reader may start on his new efforts. A study of the adrenals illustrates nicely the dependence of endocrinological advances on many fundamental sciences.

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Medicine. By Drs. Castle, Rose, Sawyer, Richards, Dodds, Anrep, Blake, Northrop. Series XXX. Baltimore. The Williams & Wilkins Company. 1936. Price \$4.00.

AN UP-TO-DATE VITAMIN CHART. By Robert Jordan FRASER, 35 N. Menard Ave., Chicago. Price, \$2.00.

This chart covers the field of vitamins in an up-to-date manner. It represents a thorough research of the vitamin literature for upwards of ten years.

The chart is far superior to the best text books on vitamins, because it is up-to-date, is brief and concise, and is arranged and classified for easy and rapid cross-referencing—just what a practicing doctor wants and needs. Many doctors haven't the time and others will not take the time and effort to read up on the subject of vitamins. In order to get all the facts pertaining to vitamins, one would have to look through a great number of journals and then, finding the articles, he would have to wade through a lot of experimental data to glean a few practical facts. Few doctors know anything about vitamins, and fewer yet realize the important part vitamin deficiency plays in causing morbidity.

The author's data was taken from the writings and works of more than three hundred experimenters and authorities in the vitamin field. The data quoted is all authority, having been taken from several books on vitamins and from various issues of over sixty different medical, biochemical, experimental, nutritional and pathological journals from all over the world. On the back of the chart are over nine hundred references giving the source of the data quoted. In the case of conflicting statements in regard to points in controversy the author has quoted the side of the controversy backed by the most reliable authorities.

TREATMENT OF BURNS BY VITAMINS AND CAMPHOR IN OIL.

Dr. C. O. Franzetti in *Semana Medica* 42 October

3, 1935, page 998, claims that in treating severe and infected burns that he has had satisfactory results from a combined internal and local treatment that consists in the administration of daily doses of from 20 to 30 drops of a solution of vitamins A and D, prepared at a concentration of 12,000 vitamin units each per cubic centimeter of the solvent, and the application of camphor in oil (at a 7 per cent concentration) dressings over the entire burned area. The local infection, general intoxication, edemas, vomiting, fever, tachycardia and albuminuria that complicate large, deep seated and infected burns rapidly diminished until complete disappearance. The renal functions rapidly become normal and the local results, especially those related to the formation of scars, are gratifying. The author has treated several cases with success.

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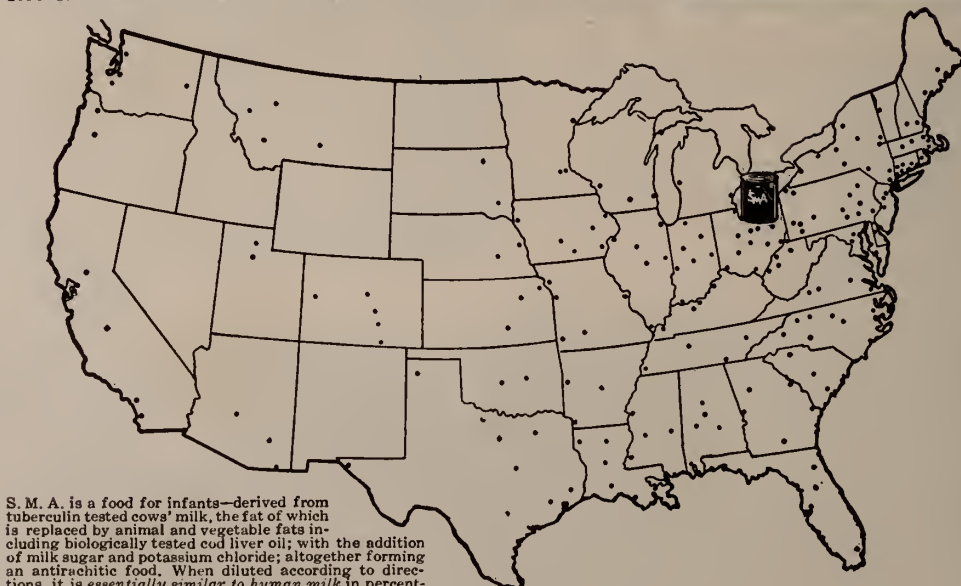
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As a result of these basic contributions, there are available today a number of excellent standardized carriers of vitamin D. Viosterol, and the fish liver oils, and their concentrates, are readily available for use in the campaign against rickets whose prevalence, especially among infants in large urban centers, still remains high. In addition to these vitamin D carriers, the vitamin D fortified or irradiated foods have appeared within recent years.

It has become increasingly evident that there are a number of compounds which may promote calcification in the various animal species. It is further evident that these compounds vary in their physiologic

efficiency with various animal species, or that they are "species specific". A number of forms of vitamin D have been postulated (4) and much research in the vitamin D field has been directed toward their isolation and identification.

In general, natural foods have never been regarded as important sources of vitamin D. The commonest food articles show extremely low antirachitic potencies when measured by conventional methods. However, recent evidence has been offered that the contribution of vitamin D made by a varied diet of canned foods may be more significant than has heretofore been supposed (5). While common foods admittedly cannot supply the high demands of infancy and childhood or other phases of the life cycle, for vitamin D, it would appear that they may supply significant amounts of the vitamin to the diet, especially in the case of the adult human, concerning whose quantitative vitamin D requirement comparatively little is known.

Biological research has shown that canned marine products such as salmon, shrimp, and oysters (6) make a small but definite contribution of the antirachitic factor to the diet. We desire to direct the attention of our readers to these interesting facts about canned foods in general, and these canned marine products in particular.

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(1) 1924. J. Biol. Chem. 67, 405

(2) 1924. J. Biol. Chem. 62, 301.

(3) 1932. Ann. 442, 226

(4) 1935. Physiological Reviews 15, 1-97

(5) 1934. Ind. Eng. Chem. 26, 758

(6) a. 1935 J. Home Econ. 27, 668

b. 1933 Science, 74, 308

c. 1926, Wis. Agr. Expt. Sta. Bul. 358, 124

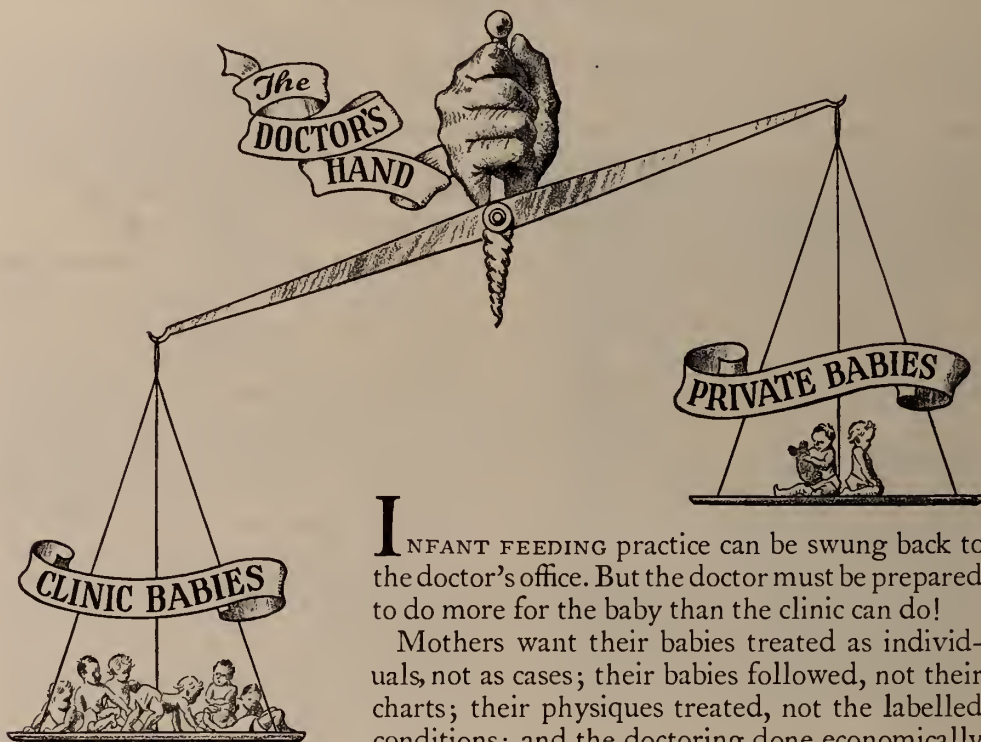


*This is the fifteenth in a series of monthly articles, which will summarize, for your convenience, the conclusions about canned foods which authorities in nutritional research have reached. We want to make this series valuable to you, and so we ask your help. Will you tell us on a post card addressed to the American Can Company, New York, N. Y., what phases of canned foods knowledge are of greatest interest to you? Your suggestions will determine the subject matter of future articles.*

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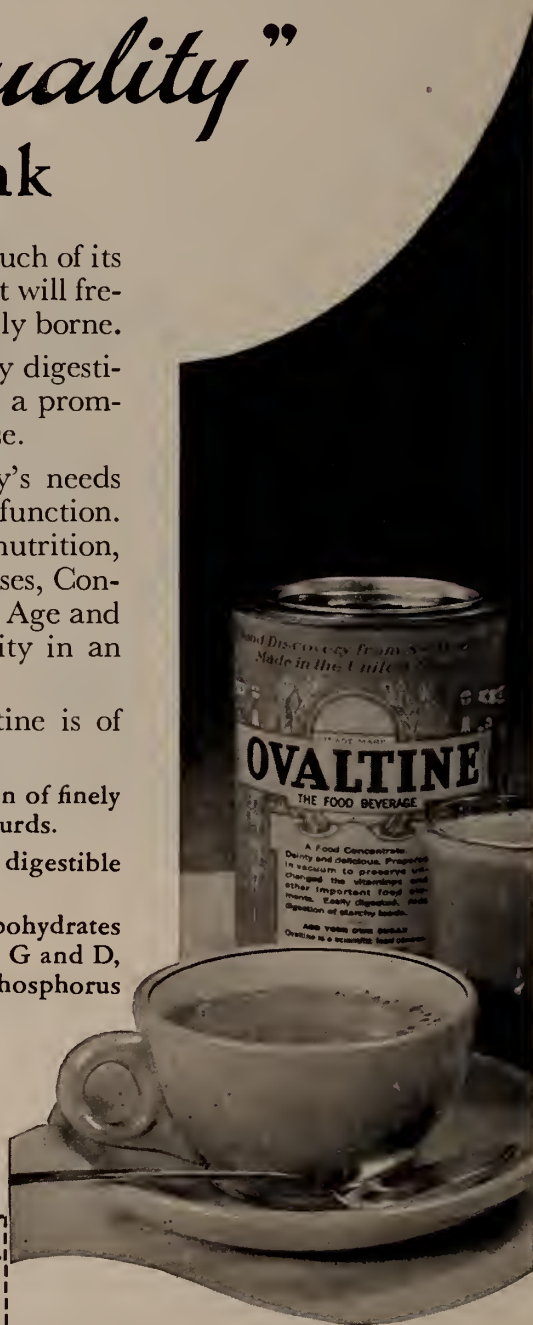
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# FOR THE SAKE OF TH ... AND THE SAKE O

As a result of rapid strides in the biological and clinical sciences, the nutritional requirements of the gravid and lactating woman are becoming more apparent (1). The far reaching effects of the pregnant state upon the maternal organism demand an increased intake of certain minerals, food elements, and vitamins for normal health during pregnancy and post partum, and for the proper development of the foetus.

## VITAMIN E a vital factor

While other vitamins may be necessary for the proper development of certain systems or organs in the foetus, an adequate maternal supply of vitamin E is absolutely essential for the continuation of pregnancy itself. If the gravid woman's diet is deficient in vitamin E, death and extrusion of the foetus takes place early in the parturient state. Furthermore, normal intrauterine growth and development during the ten lunar months of pregnancy is vitally linked to an abundance of vitamin E in the maternal diet.

## Present Day Diet does not provide it

The absurd statement is frequently made that the average diet contains a sufficiency of vitamin E. Exhaustive studies reveal that the foods eaten by the majority of our population contain only one-tenth to one-fifth of the vitamin E requirements of the organism. Processing of foods is largely responsible for this deficiency of diet. The removal of the wheat germ from flour and cereals deprives the consumer of his most important source of vitamin E. Canned milk may be entirely devoid of this accessory article of the diet; wilting of green and leafy vegetables destroys another important

source. It is the unusual individual who receives his adequate supply of vitamin E.

## AVITAMINOSIS E a definite clinical entity

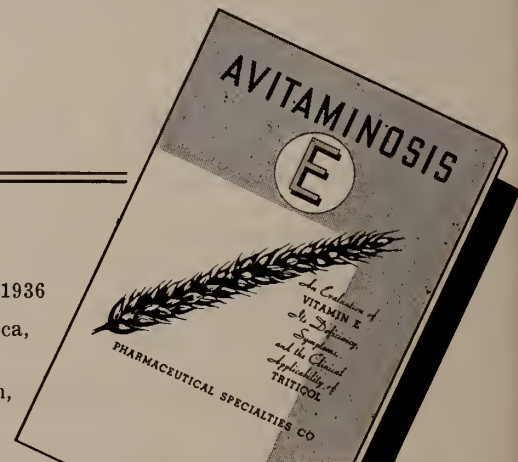
The effects of vitamin E deficiency, although protean in their clinical appearance, are daily becoming more widely appreciated, and are being recognized by greatly increasing numbers of physicians (2). Avitaminosis E produces untoward changes in pregnancy, in lactation, in the development of the newborn, and appreciably shortens the sexual life of males.

## Manifestations

Deprivation of vitamin E in the diet produces disruption of pregnancy with consequent abortion. Improper ovular development makes the continuation of the pregnant state impossible. Normal lactation is apparently dependent upon vitamin E; furthermore, this vitamin itself is transmitted by the mother's milk to satisfy the requirements of the infant. If these are not met, a flaccid type of paralysis, frequently indistinguishable from poliomyelitis, develops early in life, and may result in death if not properly treated. Normal gonadal activity in the male depends upon the influence of vitamin E. Premature testicular atrophy, with consequent impotence and sterility, are frequently traced to an inadequate supply of vitamin E, and are promptly eradicated if this vitamin is administered before the atrophy of the testicular parenchyma is complete.

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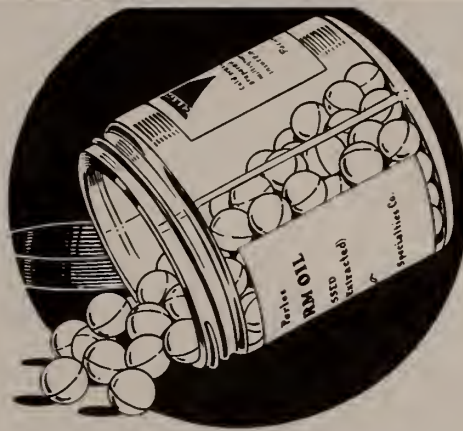


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The investigations of Vogt-Moller (3) and others (4) have clearly established the efficacy of vitamin E in curing habitual abortion. In the absence of uterine pathology, the tendency to abort is usually due to a lack of vitamin E in the diet; the requirements for this substance during the gravid state are either greater than otherwise, or an intolerance develops, necessitating a greater vitamin E intake. Vogt-Moller reported a series of twenty cases of habitual abortion treated by wheat germ oil. Of these, seventeen were carried to full term. Currie (5) collected twenty-nine similar cases; at the time of his report, twenty-three had delivered, and the remaining six were past the sixth month of pregnancy. He ascribed his favorable results to the administration of wheat germ oil.



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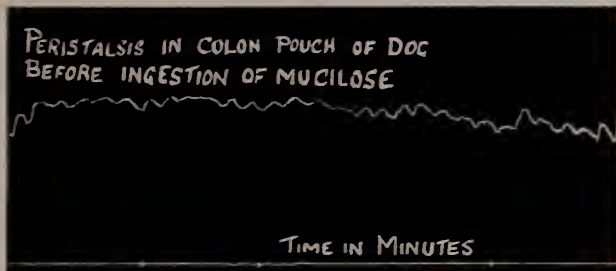
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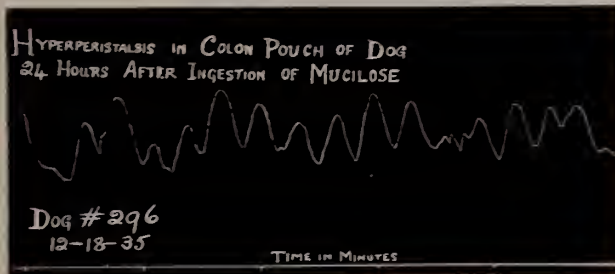
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No. 6

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## Editorials

### AMERICAN MEDICINE IS A MUCH BETTER PRODUCT THAN THE IMPORTED BRAND

The pedigree of panel medicine looms up as of unprecedented import to the United States,—a nation where what a man does or plans to do has always been of far more moment than the plans or deeds of his ancestors, be they what or whom they were.

And when this pedigree is set forth, the world at large,—if such setting has been accurate will behold a family tree in comparison with which the genealogy of the notorious Jukes family will seem like the prize horticultural exhibit of the Garden of Eden.

In the first place panel medicine, state medicine and all their family sprigs, shoots, seedlings, offshoots and trailers is a plant indigenous to countries where the human status is an entirely different vegetable from what it is in our now communistically menaced land.

Citizens in the United States possess the birth right of that feeling of independence, self-respect and devotion to individual effort that sent men and women to settle the new continent some several centuries since. From those ethical qualifications has been produced the greatest effort at self government known to history and one in which medicine, the law and the church have played upstanding parts. Nor was the gift of neighborliness, pure and simple, that developed when the thirteen original colonies stood as a thin purposeful line against the wilderness and the savagery of man and beast that called it home,—ever forgotten. No man nor woman lacked for opportunity for service, nor was service, either of medicine or of the church, ever lacking in time of need, while if the law failed to do its part, then human effort and human sympathy whipped the law into line.

So great was this birthright of a gift for neighborliness that it has almost cost Americans their America. American neighborliness opened



wide the gates of America for the downtrodden of other lands. They were made welcome to come here and to become part of the world's greatest nation.

Aside from a few pestilential diseases that medical supervision and quarantine have stamped out of the luggage of these "new Americans," the worst germ brought in by these refugees from oppression has been a complete deficiency of that sense of neighborliness, of true Americanism, that has for its base the love of individual and the rights of each man for himself as well as for his neighbor.

Some of the new blood acquired this sense. Others from the darkest lands of other continents not only failed to acquire it, but once well within the gates began to presume to graft upon their new territory the worst of the habits, customs and ideas under which themselves and their forefathers had sweat and burdened.

In this, they were like the thief in the night, who strolls into his neighbor's pantry after days of idleness and walks off with the harvest of his neighbor's days of backbreaking labor.

Aliens and alien ideas deal with an entirely different standard of living and of consequences from what America has wrought. The poorest American laborer as well as the most indigent American citizens has had at the end of a telephone call a finer medical service, a better chance at excellent health than kings and courtiers elsewhere.

Suddenly into this situation, with medicine progressing as it has never progressed before, came a shadow so ridiculous that at first the ethical medical profession considered it to be less than the shadow of a moth. A few long haired theorists, shouting free love and decrying bath-tubs were out howling for free clinics, free bombs and birth control. In our land of the free and home of the brave, serene in their own staunch Americanism, the medical profession continued calmly in its lines of self-sacrifice.

Suddenly the medical profession woke up. One of those bombs, the one labelled State control, Lay control, Political control of the science and the practice and what Profits there may be in the practice of medicine had exploded squarely in the face of every doctor in the land from the highest paid specialist to the most humble hamlet's one practitioner.

What had happened was that some of the

long-haired shriekers had filled the ear-drums of idle wealth, seeking a new sensation, and had secured promise of assistance in the work of destruction that is the inherent trait of some sections of American's "imported" citizenry. Idle wealth tired of simple "slumming" complemented this sport by a little plain and fancy meddling. It became the fad a la royalty to patronize the poor and, to pauperize the poor by pseudo philanthropy. Since free shoes, shelter and sustenance were out of the question,—what business man would tolerate such public generosity?—naturally the profession that gave away more than any other except the church,—which has charity for its cornerstone,—was used as a means of leverage. Medicine was the lever.

The fad of turning one's back upon honest Americanism coupled with the lust for all things "imported," whether anarchy, politics, titles, hats, shoes, feuds, wars or ailments, lured Americans to consider seriously the "importing" of foreign brands of medical practice. That this brand of medical practice, with a pedigree unspeakable, a present inefficient and incompetent to the highest degree, and a future that is indescribable, no more fits the American nation than a French peasant's shoe fits an American woman's foot,—that it is to be hoped America discovers rather by precept than by practice.

Health insurance or state medicine or the panel system, is, as all America is discovering a German product. The "blood and iron" Bismarck whose precepts brought about the frightful World War, more or less directly, was responsible for the first sprouts of health insurance, nearly 100 years ago (begun in 1846—a law in 1883). Finding little favor at first the idea has grown until practically every European country is permeated with the noxious growth. In every instance where this has become influential, both the progress of medicine as a science, and as a practice and the state of the public health has deteriorated. Austria (as the country was known in pre-war days) was at one time a Mecca for medicine. No section of its dismantled area is in anything but a chaotic medical state today.

The same accusation holds as to Germany. France is at loggerheads upon the subject. In England, not only has the expense of caring for the sick increased intolerably but the medical profession has been reduced under the panel system to almost the same servile condition as

the hounds of the Quorn or the Mowbray hunts, when it comes to personal privileges or independent thinking or action or preferences.

Take for example,—The R. M. O., or Regional medical officers who are officers of the Ministry of Health. They are referees in disputes concerning disabilities that may arise from any whim of an insured person as to what he thinks the physician should or should not have done for him; from any real or fancied irregularity or neglect of the involved records all panel doctors are required to keep, from any complaint that the panel chemist may have seen fit to make as to the doctor's dispensing of drugs, dressings or supplies, any complaint that may be made by the county insurance committee as a body (this consists of from 20 to 40 members of whom one-fifth are physicians, three-fifths are insured persons and one-fifth is appointed by the county council appointing druggists and women members) or from the ministry of health itself; or from the local medical committee,—representatives of insurance physicians who are under agreement to treat the insured patients (a panel committee); and representatives of all physicians in the area. (Remember that panel doctors get paid a per capita fee of some nine shillings or about \$2.25 per annum!) Under the disputes arising too, are those regarding the patients' capacity or incapacity for work. At any time that the R. M. O. wants to know anything as to records or patients it is up to the panel physicians to produce them to the officer or to his representative.

Failure to observe rules causes irregularities in certification. Such failures are viewed with great concern, and even an error in dating, no matter how humanly accidental, may result in the direst of disaster and disciplinary action upon the poor panel doctor.

Yet there are actually thousands of Americans, and sad to relate hundreds of misinformed American physicians, who are preaching "panel physicians" in this "land of the free and the home of the brave."

Having imported the idea of state medicine, would it not be a good idea to import for temporary elucidation purposes only, a few practicing panel physicians?

By the time that these had finished telling "the truth, the whole truth and nothing but the truth" about panel medicine, and how in Merrie

England "A physicians' life is not a happy one" perhaps a few of our pseudo-philanthropists would be rich meat for persuasion by a band of American physicians and American patriots that America does not want panel medicine in any form.

Consider too, this fact, quoted from reputable authority: The total amount distributed during 1934 in Great Britain in sickness and disablement benefits and mainly on evidence of insurance physicians certificates was well over \$100,000,000.

There are some things manufactured in America much better than we can import them from abroad. One of these is the profession and practice of medicine. Those things that we cannot produce, that we must bring in from foreign countries should be as carefully examined as to pedigree and proclivities as are live stock and fruit trees. Under examination at quarantine, panel medicine will not stand up either as to pedigree or practice.

### DEATH MARCHES ON DESPITE THE PANEL SYSTEM AND GOVERN- MENT MEDICINE

Comparisons are sometimes as obvious as the poet says they are odious.

A few statistics imported from Great Britain show that the panel system does not cause the death rate to bat an eye, let alone to weaken, nor to shrink when confronted with that variety of compulsory health insurance known as the "panel system."

Authentic figures show further that from 1921 to 1927, in the "sickness benefits" claims of men rose some 41%; those of unmarried women 60% and those of married women, 106%. Also that in the claims for disablement benefit, or a lump payment after 26 weeks of sickness benefit, claims of men rose 85%; of unmarried women, 98% and claims of married women some 159%.

According to Dr. Edward F. Klein of Perth Amboy, N. J., writing in the *Journal of the American Medical Association*, in Great Britain in money paid out in sickness and disablement benefits are found the interesting comparisons as set forth in this table:

Year	Persons Insured	Sickness and Disablement Benefits
1920	12,787,000	\$ 33,540,000
1928	13,798,000	73,445,000
1934	18,500,000	100,659,650



These figures exclude amounts paid out for medical and maternal benefits, hospitalization, dental and optical treatments.

As against \$0.55 per person for drugs in 1920 to \$0.80, in 1927 is another item. In 1921 the total cost of drugs was \$5,947,250. In 1927, it was \$9,334,370 and in 1934, \$2,500,000.

Dr. Klein has commented ably, "What is panel medicine? It is medical terrorism. It is medicine blank and void of hope and endeavor."

In regard to the drug situation it is noted that the panel druggist or chemist receives a list of authorized appliances and drugs.

A national formulary has been issued and standards for dressings have been adopted. To regard economy and yet to provide therapeutic efficiency has been the main idea. So liniments must be ordered in quantities of two ounces and gauze in quantities of one square yard. Further, practitioners must keep a check on the consumption of medicine.

And in spite of all the government control and red tape on and about the Hippocratic oath, the figures stand that:

Death rate in England and Wales  
(According to British Statistical Abstract)

Year	Persons	Per cent
1920 .....	466,130	12.4
1928 .....	460,389	11.7
1933 .....	496,465	12.3

According to these figures, in the year 1933, 13 years after the installation of the supposedly Messianic "panel system" the actual number of deaths increased 30,335 over what it had been in 1920, although the ratio to population dropped one tenth of one per cent as shown by the 12.4% in 1920 as against 12.3% in 1933, a difference probably more than accounted for by the natural increase in population.

Noteworthy, too, are the figures from The United Kingdom or England, Ireland, Scotland and Wales, with the Imperial Empire of India excluded and both Canada and Australia and other Colonial possessions out of the reckoning and where the panel system is not of universal acceptance. The British Statistical Abstract again furnishes the figures:

Death Rate in United Kingdom		
Year	Per cent	Persons
1920 .....	12.9	600,847
1928 .....	11.9	543,664
1933 .....	12.5	579,467

In other words where the panel system did not predominate there was a diminution of

deaths (even including the havoc of state medicine), between the death rate of 1920 and that of 1933 in the United Kingdom of 0.4% or of some 21,380 persons. In England and Wales for that same period the death rate though showing a diminution of 0.1% in ratio to population evidenced an actual mortality increase per capita or the death of some 30,335 persons.

This is an indictment against the system which admits of no alibis.

This is proof positive, too, a "camera finish," that despite the protests of would-be reformers, of theorists, of socialists and of communists generally, that the socialization of such an inexact, of such an individualistic and such a mandatory science as is medicine begets the destruction of medicinal efficiency and medicine's main purport,—i. e. to reduce illness and to decrease the death rate.

#### AMERICAN STATESMAN APPRECIATES FOLLY OF REGIMENTATION OF MEDICINE

Without any idea of political partisanship or prejudice the ILLINOIS MEDICAL JOURNAL experiences keen delight in reprinting the statements against regimentation of medicine as made by Gov. Alfred M. Landon of Kansas at that time a candidate for the Republican nomination for president, before the annual convention of the American Medical Association at Kansas City, Mo., which was reprinted also in the *Journal of the A. M. A.*

"From the earliest days the general practitioner in America was, first of all, an individualist. The circumstances of his work made him that; but it was a fortunate situation for the people who needed medical care. It meant that they could have personal ministrations, that there was an intimate relationship between physician and patient and that the sufferer became at once, and remained, the object of very special attention.

"Down to the present day American medicine has continued to be primarily individualistic. It is chiefly on that basis that it is to be distinguished from medicine in many foreign countries. I know very well the arguments for an extension of the best of medical service to all groups of the American people. It is a worthy cause. It is enlisting the attention of

the best brains of your profession. I have confidence that you will work it out.

"But medicine will not willingly be made the servile instrument of politicians or the instrument of domineering bureaucracy. I predict that the typical American physician and organized medicine as a whole will at no time be ready for any scheme of regimentation, for any system of impersonalized medicine which is totally alien to the best traditions of the American practitioner and of the profession as a whole.

"The American practitioner will not be a party to destruction of that individual, personal service which has been the occasion of a special and justifiable pride. Whatever further advances are made in the broadening of medical service—and there will be an abundance of them—will be made, so far as he is concerned, in accordance with the fundamental conditions of previous achievements.

"I want especially to approve the efforts for meeting its responsibilities of the Jackson County Medical Society as mentioned by its president. A nation that can maintain and even elevate its medical standards and the state of public health in the trying years of a prolonged depression needs to make no apology for the quality and the reach of its medical facilities.

"That condition itself is a tribute to the American physician in his continued, unselfish devotion to a worthy task. May you long abide in your loyalty to the ideal of individual, personal ministrations."

### THE 1936 ANNUAL MEETING

The 86th Annual Meeting of the Illinois State Medical Society was held in Springfield on May 19, 20, 21, 1936. The attendance at the meeting compared favorably with other meetings of recent years, the total registration being approximately 1,500, with more than 1,200 members of the Society present.

All sessions were carried on according to the printed program and all were well attended. The largest attendance at any session was present when Dr. George Crile of Cleveland delivered the Oration in Surgery on Wednesday morning, the attendance being approximately 800. Dr. Ralph Kinsella, Professor of Clinical Medicine at the St. Louis University School of Medicine

gave the Oration in Medicine on Tuesday afternoon with a large attendance.

All meetings were held in the large Knights of Columbus building, and both the technical and scientific exhibits were displayed in the same building.

There were 39 interesting scientific exhibits, many of which were shown at the A. M. A. meeting in Kansas City the previous week. It was a difficult task for the committee on awards to determine the winners of the medals and certificates of merit which were given for the best exhibits in the three classes of scientific exhibits.

Much business was transacted in the two meetings of the House of Delegates but with the referral of all reports and resolutions to reference committees for study and report back to the House of Delegates. This work was done thoroughly with no loss of time.

The following were elected by the House of Delegates on Thursday morning, at which time Dr. Rolland L. Green of Peoria was installed as president:

President-Elect, Dr. Rollo K. Packard, Chicago.  
1st Vice-President, Dr. R. F. Herndon, Springfield.  
2nd Vice-President, Dr. John W. Long, Robinson.  
Secretary, Dr. Harold M. Camp, Monmouth.  
Treasurer, Dr. A. J. Markley, Belvidere.  
Councilor of 3rd District, Dr. L. E. Day, Chicago.  
Councilor of 6th District, Dr. T. B. Knox, Quincy.  
Councilor of 9th District, Dr. Andy Hall, Mt. Vernon.

Councilor of 10th District Dr. J. S. Templeton, Pinckneyville.

Delegates to the American Medical Association:

Dr. Chas. J. Whalen, Chicago.  
Dr. J. J. Pflock, Chicago.  
Dr. G. Henry Mundt, Chicago.  
Dr. G. C. Otrich, Belleville.  
Dr. E. S. Hamilton, Kankakee.

Alternates to the American Medical Association:

Dr. M. I. Kaplan, Chicago.  
Dr. Frank P. Hammond, Chicago.  
Dr. N. S. Davis III, Chicago.  
Dr. R. J. Coultas, Mattoon.  
Dr. L. O. Frech, Decatur.

### STANDING COMMITTEES

Public Relations:

Dr. W. S. Bougher, Chicago.  
Dr. Fred H. Muller, Chicago.  
Dr. H. W. Woodruff, Joliet.

Medical Legislation:

Dr. John R. Neal, Springfield.  
Dr. Mather Pfeifferberger, Alton.  
Dr. M. J. Hubeny, Chicago.

Medico-legal (for three years):



Dr. Oscar Hawkinson, Chicago.  
 Dr. Walter Wilhelmj, East St. Louis.  
 Medical Education and Hospitals:  
 Dr. J. P. Simonds, Chicago.  
 Dr. W. R. Marshall, Clinton.  
 Dr. H. O. Munson, Rushville.  
 Relations to Public Health Administration:  
 Dr. F. F. Maple, Chicago.  
 Dr. Frank Heda, Chicago.  
 Dr. Thomas Meany, Chicago.  
 Dr. Bernard Klein, Joliet.  
 Dr. L. O. Frech, Decatur.

#### SECTION OFFICERS FOR 1936-1937

##### Section on Medicine:

Dr. Jas. G. Carr, Chairman, Chicago.  
 Dr. Cecil Jack, Secretary, Decatur.

##### Section on Surgery:

Dr. S. Paul White, Chairman, Kewanee.  
 Dr. Summer Koch, Secretary, Chicago.

##### Section on Eye, Ear, Nose and Throat:

Dr. John A. Cavanaugh, Chairman, Chicago.  
 Dr. C. B. Voigt, Secretary, Mattoon.

##### Section on Public Health and Hygiene:

Dr. Archibald Hoyne, Chairman, Chicago.  
 Dr. Winston Tucker, Secretary, Springfield.

##### Section on Radiology:

Dr. Roswell T. Pettit, Chairman, Ottawa.  
 Dr. Ralph G. Willy, Secretary, Chicago.

##### Secretaries' Conference:

Dr. Donald W. Killinger, Chairman, Joliet.  
 Dr. John W. Long, Vice-Chairman, Robinson.  
 Dr. D. D. Monroe, Secretary, Alton.

##### Pediatricians' Meeting:

Dr. Arthur H. Parmelee, Chairman, Oak Park.  
 Dr. Joseph K. Calvin, Vice-Chairman, Chicago.  
 Dr. Gerald Cline, Secretary, Bloomington.

##### Obstetricians' and Gynecologists' Meeting:

Dr. Ralph A. Reis, Chairman, Chicago.  
 Dr. Floyd L. Heinemeyer, Secretary, Rockford.

By a close vote, the House of Delegates gave a preferential vote for Peoria as the place of the 1937 Annual Meeting, subject to the approval of the Council after investigating the facilities in that city, which is in accordance with a change made at the meeting in the By-Laws governing the selection of the meeting place.

A number of changes were made in the Constitution and By-Laws by the House of Delegates which will be referred to in a later issue of the *Illinois Medical Journal*.

It was the unanimous opinion of the members present at the meeting in Springfield that the Host Society and the many committees deserve much credit for the arrangements which had been made for a successful meeting.

The following is a report of the Committee on Awards for the Scientific Exhibits:

#### CLASS I:

Silver Medal: S. William Becker.

Bronze Medal: Arthur F. Abt, Chester A. Farmer and Miss Smith.

Certificates of Merit: Abraham Levinson and Harold O. Mahoney.

#### CLASS II:

Silver Medal: H. S. Henrickson, Chicago Municipal Tuberculosis Sanitarium.

Bronze Medal: Paul H. Holinger.

Certificate of Merit: L. M. Hilt and F. W. Light, Springfield.

#### CLASS III:

Silver Medal: Robert W. Keeton and Ford K. Hick.

Bronze Medal: Rollin T. Woodyatt.

Certificates of Merit: H. H. Zorn and O. U. Sisson, Illinois Pharmaceutical Association; Frank J. Jirka, Illinois State Department of Health; Sangamon County Medical Society.

#### THE PASSING OF WM. D. CHAPMAN

William Day Chapman, former past president of The Illinois State Medical Society, and contemporary member of the House of Delegates of the American Medical Association, died suddenly in his home at Silvis, Ill., on March 16, 1936, of heart disease following an attack of erysipelas.

Dr. Chapman was only 52 years of age. Though, verily, "his days were numbered", his hours of human service were not, for the results of his labors will reach down through the years. Further, his life was not only *exemplary* but *exemplar*. Such was his gift of perspective and innate feeling for the competencies and responsibilities of the practice of medicine, that Dr. Chapman embraced rather than scorned the demands of general practice in a comparatively small town, and without fanfare of trumpets. He was, too, one of the first of the younger men of medicine to realize the encroachments of bureaucracy, federal interference and non-scientific legislation upon strictly medical fields. Rapidly becoming an authority upon medical economics, Dr. Chapman gladly threw himself into the thick of combat.

Even as far back as 1920, Dr. Chapman had heard the call to arms. When the Sheppard-Towner Act was defeated in the Illinois General Assembly in April, 1921, this unAmerican, un-

patriotic measure owed its downfall at that time largely to the personal effort, foresight and eloquence of Dr. Chapman as well as to his able analysis of the real meaning of the Act in his presentation of the question before the legislators. In fact various authorities accredited Chapman with the entire victory.

In January, 1929, Dr. Chapman was one of the valiant representatives of the Illinois State Medical Society who went to Washington and appeared at the hearing of the Newton Bill, an attempt to continue the Sheppard-Towner Act, where he made what was termed a magnificent indictment of that anti-medical legislation. In fact, this speech of Dr. Chapman's has been held to have been one of the decisive influences that stemmed the menacing tide. Partly because of this Dr. Chapman was one of five chosen by the A.M.A. to appear in Washington, during February, 1932, in opposition to, and at the hearing of the Jones-Bankhead Bill.

Although times were hard in Illinois, and Dr. Chapman was doing his best, as he himself stated at the time, "to keep two kids in college and scratch for a living" he yielded to the persuasions of Dr. Olin West, secretary of the American Medical Association, and Dr. William C. Woodward, Bureau Director, and accompanied them to this record hearing. Later Dr. West wrote to Dr. Chapman with high encomium for his work, remarking in part:

"I know very well that it required considerable sacrifice on your part to go to Washington but we were especially anxious to have you there because we felt that you could not only make a good presentation but could also, if occasion arose, take good care of yourself in debate. Again I express my most grateful appreciation."

As Browning sang, "There is no praise like the fellowcraftsman's praise." To attempt to enlarge upon such statements as those of Dr. West's would be literally "To paint the lily." Suffice to say that William Day Chapman was a working as well as a preaching evangelist in the field of medical economics.

Because of those tenets he was a great crusader for medical organization. A sterling patriot, he carried into both his private and professional life the early American motto of "United We Stand, Divided We Fall." It was his belief that in organized effort of both the medical and

dental professions lies both the future of those professions as well as that of public health and mundane salvation.

To a certain extent these traits were both bred in the bone and born in the flesh. For William Day Chapman was the son of a pioneer physician and patriot. In fact, his father, Dr. Henry Wilson Chapman, was instrumental in the formation of the Green County Medical Society, and in its youth had served as vice-president of



William Day Chapman, M. D.

the Illinois Medical Society. The senior Dr. Chapman, born in Cincinnati, Ohio, March 13, 1848, had begun his career as physician and surgeon at Barr's Store, Macoupin County, Ills., during 1877-78. In 1878 Dr. Chapman and his wife, a bride of the year, and in her girlhood Annie Henderson of Barr Township, removed to Whitehall, Ills., where in 1882 was born William Day Chapman. He learned to respect, to admire and to emulate what is best and finest and most responsible in the practice of medicine at his father's hearth. From his mother, Dr. Chapman was trained in an intense patriotism. Daughter of farming people, her father and his



brothers had all known the strife of action in the War of 1861-4.

At the age of 18 with his high school diploma in his hand, the future physician learned telegraphy at the Whitehall station of the Chicago, Burlington & Quincy Railroad. He took a job there as an operator and worked at this trade faithfully both before he went to college and while he was an undergraduate. In June, 1908, the Washington University Medical School of St. Louis, gave William Day Chapman the degree of Doctor of Medicine. In August, 1908, Dr. Chapman went to Silvis, Ills., entered practice and remained there up until his death with the exception of the year and a half of his life when he was a member of the Medical Corps of the U. S. Army, during the World War and with the commission of Captain. After the conflict Dr. Chapman became interested in the work of the American Legion. From the time of its formation he was prominent in the activities of the East Moline Post. For many years he was surgeon for the Rock Island lines, working out of Silvis.

Dr. Chapman made himself find time to serve in official capacities in many medical organizations. In October, 1921, he became a member of the Council of the Illinois State Medical Society, and served from May, 1922-24, as secretary; resumed his seat in the Council in May, 1924, serving as Council for the Fourth District until made president-elect of the Illinois State Medical Society in May, 1929, and served as president from May, 1930 to May, 1931. By unanimous vote of the Council, Dr. Chapman acted as chairman of the Council for the four consecutive years, May, 1925-9. Ever since its organization in 1922, Dr. Chapman had been a member of the educational committee of the Illinois State Medical Society.

Other offices held by Dr. Chapman were Secretary of the Rock Island County Medical Society, and later its President in 1917, and President of Iowa and Illinois District Medical Society in 1920.

In 1922 he was assigned by the Rock Island lines to be the Sanitation officer in the maintenance of the large barracks which were built to house the men employed during the strike at the Silvis shops. At that time a serious small-pox epidemic was averted by the strictest of

regulations and compulsory vaccination of all workers. Camp sanitation work was a familiar field for Dr. Chapman, as he had been an endemiologist at Camp Fremont, California.

Dr. Chapman served the city of Silvis as its Health Officer from 1909-1917, and again from 1929 until his death; as well as its Zoning and Planning Board chairman; as President of the local Business and Professional Men's Club, and as President of the Silvis Board of Education.

WHEREAS, it has pleased Almighty God in His Supreme Wisdom to call from our ranks our highly esteemed Health Commissioner of the City of Silvis, Dr. W. D. Chapman, who for many years has presided over this Department of our fair City and has zealously guarded the health of our citizens and has been ever ready with his brilliant talents to preserve and defend the citizens from all kinds of contagious disease.

Death comes to men always an unwelcome guest, whether it comes at the close of the great battle of life beyond the ripened age of youthfulness, whether it comes at the zenith of life's career with labors yet undone or whether it comes in the morning of life's ambition with hopes and expectations promising but unfilled. It makes no difference to whom it comes or when and how it comes, friends and fellows grieve and feel the loss and beloved ones mourn the passage. All see the vacant forum and the empty chair, helpless to express their grief or understanding. Towering shafts and sculptured granite are no more the full and adequate memorials for the dead than are the beloved and hearty handgrasps of the living the proper measure of our fellowship and affection. And so with what we write and what we say at times like this when we really try to think of death and of the departed and to know and understand the loss and the meaning of it all. We are struck with the awful emptiness of words. Expression fails, but the heart and the hand have no other means of expression and so with feeble words and phrases as fitting as we know we now come to make enduring upon the records of the City Council of the City of Silvis, Illinois, what we have learned to honor and respect in the life and deeds and what we here and now are made to feel and suffer in the death of Dr. W. D. Chapman who has long and faithfully served this city as Health Commissioner.

*Be It Resolved* that we extend to his bereaved family our heartfelt sympathy.

*Be It Further Resolved* that a copy of these resolutions be sent to the family of our late fellow member, Dr. W. D. Chapman and that a copy of these resolutions be spread on the records of the proceedings of the City Council.

W. M. Slover, Mayor.

C. A. Barrett, City Clerk.

He was affiliated with Silvis Lodge No. 898 A. F. & A. M., as well as East Moline Post, American Legion. He was a troop committeeman for the local troop of Boy Scouts, and a member of the Executive Council Moline Area. Although a republican, Dr. Chapman inclined to independent effort in local affairs, where politics came into question.

In April, 1917, he had enlisted in the Medical Reserve Corps, U. S. Army, was commissioned a First Lieutenant, ordered to Fort Benjamin Harrison for training, and later assigned to the Medical unit known as "Medical Expedition to Roumania" under Col. McCaw, to combat the cholera and typhus epidemic in Roumania. This unit sailed from San Francisco Dec. 5, 1917, but a hundred miles out at sea, a message of recall was received, since the Roumanian government had joined in the Russian Armistice. Then Dr. Chapman was assigned to the Division Surgeon's office, Eighth Division Regular Army, at Camp Fremont, California, and later placed in the Sanitary Train, Eighth Division, Regular Army, and promoted to the rank of Captain in Command of Field Hospital No. 31. This unit was under orders to sail from Camp Mills to France when the Armistice came. He received his discharge at Camp Lee, Virginia, Feb. 11, 1919, and by March 1 had resumed his practice at Silvis, ever regretful he had not been at the front.

Dr. Chapman was married in 1910 to Miss Bess Wayne of Orion, Illinois. Their two children, Wm. Wayne, and Elizabeth, as well as Mrs. Chapman survive as do also a brother, Dr. Harry H. Chapman, practicing dentistry at Jacksonville, Ills., and their sister, Mrs. C. E. Stetson, of Whitehall, Ills.

Though Dr. Chapman died in his prime it can not be said that his work has ceased, for truly through the lesson of his life, where he is concerned "*Death has but opened many doors.*"

To the elderly among his confreres, Chapman's career is a matter of pride and satisfaction, and for the younger men and women it offers a creed of courage and of faith, of patriotism, and of loyalty to the tried and true ideals of all that is best in medical service.

Requiescat in Pace.

## DR. JOSIAH J. MOORE OPENS THE MOORE CLINICAL LABORATORY

Dr. Josiah J. Moore, a founder of the American Society of Clinical Pathologists and the chairman of the committee of the Section on Pathology and Physiology of the American Medical Association, for which section he had served as secretary for several years has opened "The Moore Clinical Laboratory." Coincidentally Dr. Moore has severed his connection with the National Pathological Laboratory which for fifteen years he had directed.

Dr. Moore is especially well equipped in his specialized field of service. He has taught for ten years pathology and clinical pathology at the University of Chicago, and at the University of Illinois College of Medicine. His experience as a hospital pathologist is extremely extensive, and has been obtained at numerous institutions, including the Ravenswood hospital where Dr. Moore has served for twenty-four years.

His medical publications are many and widespread.

## INSULOGENIC STIMULATION OF SEXUAL DEVELOPMENT

George A. Williams and Robert L. Williams, Atlanta, Ga. (*Journal A. M. A.*, April 6, 1935), point out that the administration of insulin to a poorly developed non-diabetic girl 8½ years of age resulted in striking acceleration of body growth and sexual development. This was manifested by increase in height and weight, stimulation of the mammary glands, ovaries and uterus, assumption of the adult type of fat distribution, and a growth of fine body hair. Discontinuance of insulin was followed by prompt regression of secondary sexual phenomena. Body growth continued, but at a less rapid rate. Resumption of insulin after a lapse of ten months resulted in prompt reappearance of the sexual phenomena, to regress as soon as insulin was again omitted.

## IF THOU TO HEALTH AND VIGOR

End of Willie's prayer—"and, dear Lord, please put vitamins in cake and candy instead of spinach and cod liver oil."



## MEDICAL ECONOMICS

Edited by the Committee on Medical Economics

of the

C. G. Farnum, M. D.  
R. K. Packard, M. D.  
J. S. Templeton, M. D.  
C. E. Wilkinson, M. D.

Illinois State Medical Society  
E. S. Hamilton, M. D., Chairman  
Kankakee, Illinois

H. M. Camp, M. D.  
I. H. Neece, M. D.  
C. B. Reed, M. D.  
C. S. Skaggs, M. D.

Address all letters and communications to the Chairman.

JUNE, 1936

After several months' delay, the papers of Doctors Loveland and Camp as well as that of Mr. McDavitt, assistant to Dr. Woodward, which were presented at the annual meeting of the Northwest Regional Conference in Chicago last February will be printed with the discussions in this issue of the ILLINOIS MEDICAL JOURNAL, on pages 499 to 523. The committee recommended that these be carefully read by every man in the state who is interested in the economic problems of the profession. In addition, the Presidential Address of Dr. Reed, presented at the annual meeting last month is heartily recommended to all. Dr. Reed has demonstrated his complete understanding of the dangers confronting the medical profession and his ability to present his

opinions on that subject are most masterful. We hope that all of the members of the Illinois State Medical Society will read this article regardless of whether they heard it at Springfield.

This is the last report of this Committee, as a new one will be appointed at the next meeting of the Council in June. It is hoped that the work will be continued and that the scope of the work as well as the results accomplished will increase with years. The outgoing committee wish to thank all members of the profession who have assisted them in the past year in spreading the information of the dangers confronting the medical profession. We trust that they will continue to assist the new Committee.

E. S. HAMILTON,  
Chairman of Committee on Medical Economics.

### EDUCATIONAL COMMITTEE

*Report for April and May*

#### SPEAKERS' BUREAU

125—Speakers were scheduled to present popular health programs before lay organizations. Doctors were invited to speak at the Annual Meeting of the Illinois Federation of Women's Clubs, the Annual Meeting of the Illinois Congress of Parents and Teachers, Annual Meetings of the Decatur and Kewanee Business and Professional Women's Clubs.

The Committee worked with the Secretary of the Chicago Medical Society and the Chicago Board of Education in promoting Youth Week and scheduled doctors to speak to the students of many Chicago schools during that period.

A physician was invited to participate in a forum on socialized medicine at the West Side Y. W. C. A. of Chicago.

A health program was arranged for a district meeting of the American Legion Auxiliary in Champaign County.

#### RADIO

45—Popular health talks were given over Chicago radio stations. At the present time the programs are being given as follows:

WGN—2:30 p. m.—Tuesday.  
WAAF—3:15 p. m.—Tuesday and Friday.

WJJD—9:45 a. m.—Tuesday and Thursday.  
WBBM—12:20 noon—Every other Tuesday.

The Committee has invited members of the Chicago Allergy Society to present a series of talks on Hay Fever and Asthma over the radio. These will begin Friday, June 19, at 3:15 p. m., Station WAAF.

#### SCIENTIFIC SERVICE

26—Scientific programs were scheduled for 16 different counties as follows:

Will-Grundy	Lee
Kane	Whiteside
Perry	Fulton
Logan	Vermilion
Paris	Scott (Iowa)
Henry	Rock Island
Marion	Randolph
Peoria	Franklin

1—Obstetrical clinic and program was given.

#### MISCELLANEOUS

25—Package libraries were furnished physicians.

Committee was invited to furnish material on child health to appear monthly in the national magazine of Eight and Forty, reaching 5,000 homes in the United States.

376—Health articles were sent to Chicago public libraries.

672—Health articles were sent to downstate public libraries.

#### NEWSPAPER SERVICE

- 40—Health articles to newspapers using regular monthly service.
- 898—Health articles to downstate papers.
- 173—Health articles to Chicago papers and community papers.
- 650—Releases about Annual Meeting Illinois State Medical Society.
- 35—Releases about meeting of Madison County Medical Society.
- 56—Releases re LaSalle County Medical Society.
- 20—Releases re Randolph County Medical Society.
- 44—Releases re Henry County Medical Society.
- 46—Releases re Whiteside County Medical Society.
- 42—Releases re Bureau County Medical Society.
- 6—Releases re Annual Meeting to Chicago papers.
- 5—Releases re Englewood Branch meeting.
- 4—Releases re North Shore Branch meeting.
- 4—Releases re Calumet Branch meeting.

#### 2,023 TOTAL

##### Press Articles Written:

- Spring and Your Health Audit.
- Fractures.
- Sun Tan Versus Sunburn.
- The Danger of Self Medication in Obesity.
- Eugenics and Its Relation to the Community.
- Malaria.

#### SERVICE TO COUNTY MEDICAL SOCIETIES

- 338—Notices prepared and mailed for Randolph County.
- 368—Notices prepared and mailed for Whiteside County.
- 162—Notices prepared and mailed for Perry County.
- 318—Notices prepared and mailed for Lee County.
- 294—Notices prepared and mailed for LaSalle County.
- 260—Notices prepared and mailed for Henry County.
- 207—Notices prepared and mailed for Bureau County.

Comments from secretaries of county medical societies indicate that this service has helped build interest in the meetings and better attendance:

"We had an excellent attendance at our medical meeting. Sixty-one for dinner and from seventeen to twenty came in after dinner. The speaker was very good and I had a great many compliments on his talk."

"I wish to express our thanks and appreciation to you for a very successful meeting. The meeting was very well attended and the speaker's message was enjoyed by everyone I have talked to."

Respectfully submitted,

Jean McArthur, Secretary.

#### REPORT OF WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

1935-1936

The program of activities of the Woman's Auxiliary to the Illinois State Medical Society for the year just closing carried out the suggestions of National Officers and Chairmen so far as were applicable to Illinois, and

approved by our Advisory Committee, together with such other activities which County Auxiliaries found particularly suited to their local communities and approved by their County Advisors.

At the post convention board meeting held in Rockford appointment of chairmen of standing committees was approved by the board and the president authorized to fill remaining vacancies. The complete list of officers, councilors and chairmen was later published in the ILLINOIS MEDICAL JOURNAL.

During the summer, we contacted by letter the president of the Illinois State Medical Society, the chairman of our advisory committee, the secretary of the educational committee, Illinois State Medical Society, and the director of Public Health, State of Illinois, asking for suggestions that might be helpful in building a constructive program for the year.

"Suggestions for Program Building" were compiled by the state program chairman after careful consideration of much suggested material, and with the approval of the president copies were sent each County organization. Each County Auxiliary was asked to use as a general theme for the year, "Education Leading Toward a Correctly Informed Membership."

Realizing that there is still a large percentage of members not sufficiently cognizant of the true purpose of the auxiliary, we asked our organization chairman to send to all auxiliaries mimeographed copies of "What an Auxiliary Member Should Know," and "How Does a Member Support Her Auxiliary?" compiled by the National Chairman of Organization.

Our Chairman of Public Relations has been intensely interested and through her continued efforts has acquainted the County Chairmen of their many avenues of approach to the public; has placed in their hands information on harmful drugs, cosmetics and proprietary medicines and lists of approved books; has advised the auxiliaries of dates and hours of radio broadcasts sponsored by the Illinois State Medical Society and the dramatized Health broadcasts of the A. M. A. She has stressed the value of the periodic health examination and urged the auxiliaries to act as reference agents for material and help on the negative side of the recently conducted High School debate contests. County Presidents were admonished to secure reprints of radio talks, newspaper articles on health activities and speakers for lay groups through the Educational Committee of the Illinois State Medical Society.

Much praise is due the *Hygeia* Chairman for the success of her efforts to meet the quota of subscriptions set for Illinois by the National Chairman.

Believing that it is vitally necessary the public be given correct information on the so-called "Social Security Act," each County was asked to arrange a "Laity Day" meeting, inviting representatives of all women's civic organizations in the community to hear a doctor explain just what would happen in Illinois should an enabling act be passed putting into effect the mandates of this Act. A large percentage of our auxiliaries have held these meetings in the form of luncheons or teas and enthusiastic praise has been expressed by the listeners for the privilege of hearing



the enlightening discussion. Many of these meetings also featured *Hygeia* and other Public Health exhibits.

Legislative activities under the direction of the Legislative Chairman of the State Medical Society were directed in spreading information on the dangers of "Social Security" legislation.

To stimulate interest on the part of doctors' wives in unorganized counties, the board approved the suggestion of the president to hold one or more regional meetings during the year, to which wives of doctors in several counties surrounding the place of meeting be invited. The president and organization chairman were empowered to plan and carry out such type of meeting. In April, with the assistance of the President and officers of Bureau County, we held such a meeting in Princeton. Post card notices were sent to doctors' wives in six counties and about forty attended the meeting. State officers and chairmen assisted the president in presenting the aims and purposes of Auxiliary work. This is a new venture, but we think we can see the usefulness of this type of meeting in stimulating organization work.

At the request of the President of Knox County Medical Society available material regarding organization of this county was forwarded and in October I accompanied the Fourth District Councilor to Galesburg, meeting with a group of the wives of members of Knox County Medical Society, speaking on "The Aims and Purposes of the Auxiliary." Organization of this county was completed in November, with a membership of twenty-five.

Three counties are in the process of organization, with permission received to organize in nine others. Cook County has shown a marked increase in membership, reporting a gain of 111 over last year, with one new branch organized during the year, the South Chicago Branch. Cook County also turned in 493 *Hygeia* subscriptions, more than 100 of which were renewals to schools and libraries and given by the auxiliary. Several other counties have made proportionate gain in membership and *Hygeia* subscriptions.

After all, it is not in membership figures alone that the growth of the organization can be determined, but in the consistent effort to carry out the auxiliary program of work.

At the direction of the board in its January meeting I prepared and presented to the advisory committee a request for financial assistance from the Illinois State Medical Society with which to further organization and public relations work over the state. We were most happy to report at the March meeting of the board that the council had voted an appropriation of \$250.00 and a check for the amount was presented to the treasurer. We wish to thank the council for this assistance and assure them that it will make possible an enlarged organization project.

Two county auxiliaries, Cook and Rock Island, have reported financial assistance from their county Medical Societies in furthering public relations work.

A most pleasant occasion during the year was the dinner meeting held in June, arranged by the Rock Island County Auxiliary in my honor, about fifty doc-

tors and their wives being present. I express my sincere appreciation to my county auxiliary for this and the many other courtesies shown me this past year.

We have held three well attended board meetings during the year inviting all County Presidents to attend the fall meeting, listen to the deliberations of the Board and, as an added privilege and pleasure, hear Dr. Chas. B. Reed, President of the Illinois State Medical Society, discuss the "Social Security Act," and Miss Jean McArthur, Secretary of the Educational Committee of the Illinois State Medical Society, speak on the "Policies of the Educational Committee." It was also our very great pleasure to have with us for part of our January board meeting our National President, Mrs. Rogers N. Herbert.

I wish to thank the members of the board for their loyal support, the County Presidents and members for the hearty cooperation they have given, Doctor Chas. J. Whalen for space in the ILLINOIS MEDICAL JOURNAL, and the advisory committee and Miss Jean McArthur for their valuable suggestions and assistance throughout the year.

While we have not accomplished all we had planned, we do feel we have had a part in strengthening the organization and increasing its value to the Medical Profession.

In closing my year as president I also finish my ninth year as a member of the Board of the Woman's Auxiliary to the Illinois State Medical Society. I deem it a very happy privilege and a great honor to have served so noble an organization.

Mrs. W. D. Chapman, President.

#### WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY 1936-1937 OFFICERS

President—Mrs. F. P. Hammond, Chicago, Ill.  
President-Elect—Mrs. H. B. Henkel, Springfield, Ill.  
1st Vice-Pres.—Mrs. E. J. Berkheiser, Chicago, Ill.  
2nd Vice-Pres.—Mrs. I. L. Foulon, East St. Louis, Ill.  
3rd Vice-Pres.—Mrs. A. H. Brumback, Chicago, Ill.  
Treasurer—Mrs. William Raim, Chicago, Ill.  
Recording Secretary—Mrs. Frank Alford, Crystal Lake, Ill.

Corresponding Secretary—Mrs. A. H. Baugher, Chicago, Ill.

#### COUNCILORS

1st District—Mrs. Imas Rice, Aurora, Ill.  
2nd District—Mrs. Raymond E. Davies, Spring Valley, Ill.  
3rd District—Mrs. Lucus Cole, River Forest, Ill.  
3rd District—Mrs. E. J. Meyer, Chicago, Ill.  
3rd District—Mrs. Carl Hedberg, Chicago, Ill.  
4th District—Mrs. F. E. Bollaert, East Moline, Ill.  
5th District—Mrs. J. E. Reisch, Springfield, Ill.  
6th District—  
7th District—Mrs. Thos. D. Laney, Salem, Ill.  
8th District—Mrs. E. S. Allen, Tuscola, Ill.  
9th District—Mrs. E. W. Burroughs, Harrisburg, Ill.  
10th District—Mrs. R. F. Stanton, East St. Louis, Ill.  
11th District—Mrs. E. R. Steen, Joliet, Ill.

## CHAIRMEN OF STANDING COMMITTEES

Organization—Mrs. H. B. Henkel, Springfield, Ill.  
 Press and Publicity—Mrs. V. M. Scron, Joliet, Ill.  
 Legislation—Mrs. W. D. Chapman, Silvis, Ill.  
 Printing—Mrs. H. M. Camp, Monmouth, Ill.  
 Program—Mrs. A. B. Middleton, Pontiac, Ill.  
 Revisions—Mrs. R. K. Packard, Chicago, Ill.  
 Public Relations—Mrs. J. A. Wolfer, Chicago, Ill.  
 Hygeia—Mrs. M. L. Hole, Danville, Ill.  
 Finance—Mrs. F. O. Fredrickson, Chicago, Ill.  
 Archives—Mrs. John Soukup, Chicago, Ill.  
 Hostess—Mrs. A. H. Brumback, Chicago, Ill.  
 Credentials and Registration—Mrs. I. L. Foulon, East St. Louis, Ill.  
 Convention to be appointed later.

WEIGHT REDUCER CAUSES BLINDNESS  
GOVERNMENT AGAIN WARNS PUBLIC

Dinitrophenol, Sold Under Many Names, Also May Damage Liver, Kidneys, Heart, or Sensory Nerves.

It Causes a Blood Disorder, and Even Death

Blindness from the use of dinitrophenol for reducing weight has not stopped the use of the drug in spite of repeated warning, says W. G. Campbell, Chief of the Federal Food and Drug Administration.

The eye cataracts observed in dinitrophenol poisoning develop with a rapidity and malignancy hitherto unknown, and result in total blindness within a comparatively short time. This drug may produce acute poisoning, the symptoms of which are nausea, stomach and intestinal distress, sweating, flushed skin, high fever, rapid breathing, and muscular rigor followed by death. The drug also damages the liver, kidneys, heart and sensory nerves. It produces agranulocytosis, a blood disorder also noted in cases of poisoning with amidopyrine, a common ingredient of medicines for the relief of pain.

The Food and Drugs Act, according to Mr. Campbell, is practically inoperative against this public health hazard. He says, "The only application of the law to these products is through some misstatement of fact or some false and fraudulent curative claim in the labeling. In any event, the law can be invoked only when the product has been transported across a State line."

"There is little doubt," continues Mr. Campbell, "that the cases of progressive blindness recently reported in California are the result of medication with dinitrophenol. It is to be regretted that the present Federal law is silent with respect to the control of dangerous drugs."

Dinitrophenol is sold under many fanciful names sometimes accompanied by a statement of the presence of the drug itself. Some of the names under which it has been or is now being sold are reported by the Food and Drug Administration as follows: Nitromet, Dinitrolac, Nitra-Phen, Dinitriso, Formula 281, Dinitrose, Nox-Ben-Ol, Re-Du, Aldinol, Dinitrenal, Prescription No. 17, Slim, Dinitrole, Tabolin and Redusols.

"It is interesting to note," said Mr. Campbell, "that all the so-called reducing preparations on the market

fall into three categories: first, laxatives that deny the body the benefit of its food intake, as the salts, crystals and herb teas; second, obvious frauds that depend for effect upon the stringent diets prescribed as part of the 'treatment,' as 'Syl-Vette' and 'Stardom's Hollywood Diet'; and third, the unquestionably effective but dangerous articles containing thyroid or dinitrophenol, both of which act by speeding up the utilization of food. All of them are unwarranted impositions upon the public, which cannot evaluate claims made for the preparations, and cannot readily appreciate the harm that may result from careless use of the products.

## ESOPHAGITIS

In a recent study, Porter P. Vinson and Hugh R. Butt, Rochester, Minn. (*Journal A. M. A.*, March 21, 1936), observed the incidence of esophagitis to be 7.02 per cent in 3,032 necropsies performed. Definite symptoms occurred in 10.3 per cent of the 213 cases in which a pathologic diagnosis of esophagitis was made. Although in thirty-two cases (10.3 per cent) there were definite symptoms that suggested esophagitis, a clinical diagnosis was made in only one case. All the information obtained concerning the symptoms of esophagitis was volunteered by the patients. It seems reasonable to suppose that, if the patients had been questioned as a routine with regard to the symptoms of esophagitis, the percentage of patients who had symptoms which suggested esophagitis would have been increased and the clinical diagnosis would have been recorded more frequently than it was. Esophagitis should be suspected when substernal pain, dysphagia or hematemesis is present. Hematemesis which occurs at any time, but especially that which occurs after operations or any acute illness, should make one suspect the esophagus as its source. It is advisable to perform esophagoscopy in every case in which there are unyielding gastric symptoms.

## AMONG IOWA CHILDREN

Using a test for ability to adapt to the dark as the means for detecting vitamin A adequacy, P. C. Jeans and Zelma Zentmire, Iowa City (*Journal A. M. A.*, March 21, 1936), found that 26 per cent of a rural group and 53 per cent of a village group of Iowa children presented evidence of vitamin A deficiency; in an urban group the proportion for the higher economic level was 56 per cent, for a middle level 63 per cent and for a low economic level 79 per cent. Of the seventy-eight village and rural children who were deficient in vitamin A and who continued under observation, all except three developed normal dark adaptation after a period of vitamin A or carotene ingestion.

## TRANSFUSION OF CADAVER BLOOD

S. S. Yudin, Moscow, U. S. S. R. (*Journal A. M. A.*, March 21, 1936), states that transfusion of cadaver blood was demonstrated in animal experiments and proved its therapeutic value in a considerable clinical material. Cadaver blood obtained from six to eight hours after death remains sterile and preserves its liv-



ing properties. The recipient of cadaver blood is afforded ample safeguards by serologic tests of the blood, a bacteriologic checkup as to its sterility, and a careful necropsy. Because of fibrinolysis, blood of individuals dying suddenly remains fluid and can be preserved for more than three weeks. The therapeutic effect of cadaver blood does not differ from that of the blood from living donors. The technic of obtaining blood from a cadaver is simple and does not require any special apparatus. The jugular vein is severed and a glass cannula to which a rubber tube is attached is introduced into each end of the vein. The cadaver is then placed in the Trendelenburg position and the blood is allowed to run into a 500 cc. glass flask. The neck of the bottle is stoppered with cotton and the bottle is placed in a refrigerator. Organization of stations for collection of fresh cadaver blood should offer no difficulties in the larger cities, particularly in the large hospitals for emergency cases. The supply could come from traffic accidents as well as from the medical service where deaths from coronary thrombosis and angina pectoris are not rare. The author's experience with cadaver blood transfusions embraces 924 transfusions. Besides, his clinic sent out more than 100 flasks of cadaver blood to various hospitals and clinics.

#### WHO EATS THE TAXES?

A press dispatch from Washington the last of December stated that more than six million men and women are now on Uncle Sam's payroll. This meant approximately one out of every twenty persons in the United States is living off the federal government. Now add to this six million the number of persons on the payrolls of states, cities, counties, towns, school districts, etc.—that is, persons who gain their living from funds secured through taxes—and you have a fair idea of why your income is near the zero mark.

To justify this enormous payroll, it will be claimed that it is a matter of emergency relief. But have these excessive expenditures been made because the people of the United States asked them, or because well organized, active, energetic and vociferous minorities urged them? Did you ask for them? Do you know of any of your neighbors who did? Your community is typical of all in this country. In truth, have not the demand for these excessive expenditures come from minorities who have imbibed freely of certain foreign theories?—*Committee on American Education.*

#### ACUTE, FATAL CORONARY INSUFFICIENCY

Robert L. Levy and Howard G. Bruenn, New York (*Journal A. M. A.*, March 28, 1936), assert that there is a group of patients with atherosclerosis of the coronary arteries to whom death comes suddenly and in whose coronary vessels, at necropsy, no fresh thrombus is found. The syndrome may be designated "acute, fatal coronary insufficiency." The clinical and pathologic features of twenty-four cases falling into this category have been studied. Records of 352 other cases of coronary sclerosis, with and without thrombosis, have been similarly studied and used as a background for comparison. In approximately 12 per cent of the fatal

cases of coronary sclerosis without thrombosis, death occurred suddenly. If thrombosis had occurred, death was sudden in 33 per cent. The presence of thrombosis thus almost tripled the likelihood of sudden death. But thrombosis of a coronary artery was rarely if ever the immediate cause of death in these patients. It increased the liability to acute coronary insufficiency by further reducing the functional capacity of an already impaired coronary system. Nonfatal attacks of various sorts in patients with coronary sclerosis may be regarded clinically as intermediate between the ordinary bout of angina pain or its equivalent and a fatal seizure. It is probable that many of these attacks are due to minor degrees of acute coronary insufficiency without occlusion.

#### DINITROPHENOL POISONING WITH THROMBOCYTOPENIA, GRANULOPENIA, ANEMIA AND PURPURA COMPLICATED BY LUNG ABSCESS

Stanley W. Imerman and Carlyle P. Imerman, Hollywood, Calif. (*Journal A. M. A.*, March 28, 1936), present two additional cases because of several unusual features that were observed for the first time following dinitrophenol; namely, anemia, thrombocytopenia, purpura and lung abscess. Cases of diffuse bone marrow depression following the use of dinitrophenol have not been reported, despite the close relationship of this drug to benzene. Their case 1 illustrates the diffuse nature of the bone marrow depression as evidenced by anemia, thrombocytopenia, leukopenia and granulopenia. Their case 2 reveals the selective damage to the bone marrow as shown by the normal hemoglobin and red blood cell count, thrombocytopenia, leukopenia and granulopenia. The average red blood cell lives in the peripheral circulation from fourteen to thirty days or more; the length of life of the mature neutrophil that reaches the blood stream is from one to six days. It is obvious then that one should take complete blood and platelet counts for at least two to four week on all patients in whom a general bone marrow depression may be suspected, and in some cases, as shown by case 1, blood counts should be taken for several months, as there may be some permanent damage to the erythroblastic tissues of the bone marrow. It might be advisable therefore to institute iron therapy as a prophylactic measure in these cases, before the onset of the anemia. The relationship between lung abscess in case 1 and dinitrophenol cannot be established from one case but should be borne in mind as a possible untoward effect of this drug. There is no known specific chemical antidote for dinitrophenol. In view of the rapidly increasing number of untoward effects of this drug, as well as the convincing comprehensive report of the Council on Pharmacy and Chemistry for not accepting this drug in New and Nonofficial Remedies, physicians should make every effort to discourage its use.

#### NIGHT BLINDNESS

Nyctalopia may, in some cases, be due to a deficiency of vitamin A in the patient's diet.—*The Doctor*, July, 1934.

## Original Articles

### THE PHYSICIANS AND THE PHARISEES

CHARLES B. REED, M. D.

CHICAGO

The problem of "Socialized Medicine" is lying heavily on our professional doorstep and we are doomed apparently to continue the discussion of this anomaly until we have convinced the world, the flesh and the devil of the reasonableness and sincerity of our disbelief in that socialistic fetich.

The decision in the triple A case on the unconstitutionality of laws which encroach upon or invade the rights of the States may retard its complete acceptance or compel the proponents of the scheme to find new avenues of attack but probably the question will remain unsettled until finally disposed of by the Supreme Court. It has too many possibilities for place hunters and graft to remain quiescent.

Three parties are involved in the plot, the *Government*, the *people* and the *doctors*. The Government has been drawn into the matter by indirection through weak subservience to garrulous propagandists, sentimentalists, self seekers and salaried altruists who are using congress to promote their socialistic heresies.

Some of the foundations are also hooked up with the socialists through the unwisdom and indifference of their boards of trustees, or from too great dependence of these men upon the recommendations of self interested advisors. The sincerity of the trustees cannot be entirely unquestioned when a little thought and circumspection would have informed them of far more promising and patriotic ways of disposing of the wealth which they received in trust from the dead hands of philanthropists.

If we could assume that the trustees and the salaried altruists who advise them were truly interested in public welfare we should expect to find them trying to correct more obvious and certainly more flagrant grievances. We should expect to find them for instance using their great wealth and influence to control racketeering, highway robbery, kidnapping and other crimes

and misdemeanors against life and property upon which a large part of the Government's tax income is now expended. The failure to see and grasp such dramatic opportunities for service is unfortunate, if not parochial.

These enterprises have no wide range for place hunters, to be sure, and but small opportunity to build a bureaucracy but it would be of extreme value to society, and the Chicago Crime Commission or the Legislative Voters League in the same city, would welcome foundational aid in bringing criminals to punishment and in assuring the competence of candidates and the integrity of the ballot.

If the foundations were not lacking in civic sense and gratitude they would support the ideals of that government which brought them into existence and if they were not deficient in moral sense they would not weaken that State through a subversive paternalism which destroys the virility of its citizens. We cannot act like children and be respected as men.

Instead of carrying out the public spirited ideals of the founders, the managers of some of these trusts have merely added to the confusion and made occasion for aliens, socialists, pedants and charlatans to fish in troubled waters. These arch-mediocrities have an overweening ambition to sit in the rich, red light of political favor while they use derelict humanity for pharisaical experiments in vivisection. The Federal government is expected to supply the misguided victims who will pay for the sadistic orgies with their own blood and treasure. They will not be anesthetized but their emotional reactions will be lulled to sleep by hypnotic slogans and by such soothing catchwords as "Social Security, Health Insurance, Old Age Pensions, Unemployment Insurance, Two hundred dollars a month from the government, Two Cars in every Garage and Ermine Facings on every Toilet Seat."

This socialistic attack upon American ideals, morals and basic laws has been long in preparation and is recruited from an active organized minority of less than 5% of the inhabitants, a large proportion of whom are aliens who live on government doles and bite the hand that feeds them by advocating socialism, communism and anarchy.

The group is led and conducted by high sal-

President's Address at Annual Meeting of Illinois State Medical Society, at Springfield, May 20, 1936.



aried socialists who exemplify and reproduce the Pharisees so perfectly described by Christ in the 23rd chapter of Matthew. "For they bind heavy burdens, grievous to be borne, on men's shoulders: but they themselves will not move them with one of their fingers. But all their works they do to be seen of men; they make broad their phylacteries and enlarge the borders of their garments, and love the upper rooms at feasts, and the chief seats in the synagogues, and greetings in the markets, and to be called of men, Rabbi, Rabbi."

Whether this socialistic assault is made openly or insidiously, in hate or ignorance, in sickly sentimentality or under the mask of public welfare it is directed against the hard won liberties of America and the effect is the same whether the deed has been spawned by the cankered brain of systematic delusion or hatched behind a smile of mental irresponsibility. Only the courts can protect our freedom as individuals or the supreme right of the States to manage their legally constituted prerogatives.

Judge Otis declared, regarding the cognate bill of Senator Wagner, "This act deals with an individual employe as an incompetent. He is a ward of the United States to be cared for by his guardian as if he were a member of a tribe of Indians or a recently emancipated slave. And further," Art. 1, Sec. 8, Clause 31, of the Constitution says, "Congress shall have power to regulate commerce among the several States but nothing else can be regulated by virtue of this power. This power cannot be increased without an amendment to the Constitution and when such an amendment is enacted then whatever remains of the sovereignty of the States will cease to be."

"Private property of one cannot be taken by taxation or otherwise on the pretext that the lot of another will be improved no matter how laudable the intent. Our system of government has been built upon the right to be secure in possession of property and that right cannot be invaded at the will of government, hence the State of Illinois cannot under the law nor with self respect pass any legislation which accepts the unlawful and humiliating conditions imposed by the Social Security Act. If we are to live under the Constitution this act must be repealed

and the principles involved abandoned as Federal measures." (Black)

Now the practice of medicine is obviously a local business under State supervision; responsible to Congress only in its interstate relations and should be allowed to fulfill its manifest destiny without interference. In this connection, John Stuart Mill affirms, "That even if government could embrace in its system all the most eminent intelligence, talent and capacity, it would be not less desirable that the conduct of most affairs should be left to the *persons directly interested therein*."

Paternalism is a tutelary device intended ostensibly to secure welfare but if once recognized as a cure for political evils it will only be by accident that it does not end in despotism or a reign of terror.

Since the Magna Carta was wrung from the unwilling hands of King John, the Anglo-Saxon race has been taught to expect that laws and enactments of government would be written with certain circumscribing regulations which all could understand and observe but this pseudo-"Security" act is put forth in words so vague and limitations so obscure as to supply no legal restrictions but rather a fulsome grant of power for an "abundant life" to bureaucracy.

Bureaucracy is the favorite child of paternalism and apparently also of some of the foundations and its first requirement is to regiment all our citizenry into definite herds of sterile minds which can be more easily manipulated by the mediocre mentality of political appointees who, like the janitors of schools, will receive larger salaries than the trained intelligencies in the educational department. The best work for advancement of civilization is done only when the production is spontaneous and free and if this production is buried under a political and uncomprehending bureaucracy the joy of life, nay, the very impulse to live will wither and perish.

Bureaucratic administration in medical practice means the compulsory shift of duties essentially particular and individual to a subsidized political control by laymen which is the worst possible form of incompetent management and leads infallibly to financial extravagance, nepotism, graft and a chaos of inefficiency as shown by numerable examples both past and present.

The visionary character of the project, the in-

evitable bureaucratic domination, the dubious proclivities of its proponents and the indecent haste in trying to get it established before court approval, all arouse the uneasy suspicion that the whole sinister "Security" campaign has been devised and advocated less for the sake of humanity than for bureaucratic opportunity and the loot, arbitrarily allotted by the head bureaucrat. Bureaucracy creeps over the country like some foul skin disease—a leprosy which slowly eats away the Nation's life.

Dr. Andy Hall reports an enlightening example of bureaucratic administration in Mount Vernon, Illinois. A group desired to arrange a home for children where they could get at least one good meal a day. They thought a clinic could be added. The doctors should go to the home and treat the children free as they now do in most hospitals, dispensaries and settlements. The doctors thought if the children could get to the home they could also get to the better equipped office for treatment. After some discussion Doctor Hall went to investigate. He discovered that 51 attendants were engaged in administering the affairs of the home at salaries from \$40 to \$50 a month while the child visitors on that day were only two though they boasted for one day as many as nine which some of us can remember, was not an unusual number of children in one family which the mother herself managed from birth to maturity. Behold an ideal bureaucracy in operation. The administration must be maintained while expense goes on and increases. A horse must always be fed but with the motor and medical care, expenditure is required only when emergencies demand, though the doctor does require occasional nutriment and he should not be required to depend upon the ravens which are not only scarce since Biblical times, but wholly indifferent.

The bureaucrats however may meet with problems not readily solved and even with aroused and intelligent hostility. Will they, for instance, compel the Christian Scientists to accept medical care in the form of health insurance, or the Spiritualists, and the numerous secular groups who are inherently and unswervingly antagonistic to physicians? Shall these free citizens be placed under a compulsory regime like the unlamented prohibition law and be taxed to sup-

port the most injurious form of governmental paternalism which is antagonistic to their beliefs? At this point some of us may recall the pernicious activities of the Anti-Saloon League.

Is it urged that the system is not necessarily compulsory? How about voluntary life insurance? Approximately seventy-five large companies have been selling life insurance in America for nearly one hundred years. They have used every appeal to pride, cupidity and prudence which high powered salesmanship could devise and yet for protection against the known certainty of death they have enlisted only 15% of the insurable risks.

How many of these people will voluntarily insure against the problematic occurrence of illness? In fact voluntary health insurance makes no appeal to the populace and leads inevitably to compulsory insurance and in both instances to failure and to human and medical deterioration.

The question of expense to the taxpayers must also be considered. According to estimates by the Committee on Medical Care the average expenditure for illness is about \$30.00 per person which means that the taxes of the nation ordinarily required to maintain and support socialized medicine on the present basis would be more than the cost of the entire army and navy or about two-thirds the cost of all other legitimate government necessities.

The cost of medical care however is in no way diminished by socialization but on the contrary, greatly increased, in fact doubled, since the vast array of directors, board members, supervisors, clerks, managers, stenographers, inspectors, janitors, snoopers and other parasites of government must all be paid as well as the actual cost of medical attention. To this burden also must be added the cost of the hospitals, clinics, laboratories and pharmacies, public, private and sectarian, which are included in this piratical Security Act as well as the medical schools.

This extravagant disbursement moreover is not avoided by the patients but merely spread about from the invalids who should pay for personal service to the neighbors who are well, so that each must pay as much as one pays now. On the whole it has been estimated that in twenty years approximately \$50,000,000,000.00



would have to be held in reserve for protection against illness alone. Yet such an absurdity is seriously proposed by infatuated dreamers and shiftily self-seekers without adequate consideration of the ultimate results.

The reserves for old age pensions and for unemployment insurance are estimated at similar sums, so that the completion of this new legislation will compel the laying aside of \$150,000,000,000.00 with a regular charge for interest (\$4,500,000,000 at 3%)—without including hospital, school and pharmacy compensation which would add another \$500,000,000.

All the gold in the world amounts to \$42,000,000,000 and only half of it is monetary and only a quarter of it belongs to America and even if such a reserve as \$11,000,000,000 could be accumulated in place of the present deficit of that sum how long could the treasure be maintained? How long before this idle opulence would be Sweitzered by needy socialists, political profligates or a shamefully subservient Congress which has neither viscera, vertebra, nor cerebral vitality? Such a fund would be a constant temptation to constitutional breaches which would expose to destruction our homes, our families, our civic pride and patriotism as well as the desolation of our industries, our morals and our federated states. Indeed the ruin would be well under way as soon as this huge political Social Security monstrosity was on the march with its millions of employes, dependents and unlimited influence in lobbying for money, expansion and votes. Let us accept the fact once and for all that no system of social insurance provided by a democracy can develop into anything but a plaything of politics no matter how ideally it may be designed. Nor, can such measures have universal application in so diversified a country as America.

The programs for all these ill omened and ill considered projects call for *compulsory payments* from the payroll class, the employers, the State, and others who have not the least responsibility for the individual illness, nor any justification for being involved in efforts to thwart the laws of nature.

The actual operation will start with the idle, the shiftless and subnormal together with 3,000,000 aliens who are now on the dole, and who will be housed, nourished and medically

cared for by the people whose prosperity they begrudge and whose ideals they betray.

With the habitual indifference of dependency this group will breed and multiply like rabbits until the State is filled with spoonfed derelicts and defectives who have been mentally and morally emasculated by the sophisticated insincerities of the social theorists. Meanwhile taxes will rise until the present treasury raids which the Government has wasted and lost, to the consternation of every sober minded industrialist, will look like a few copper pennies in a wilderness. Malingering will then begin to swell the total to unimaginable proportions.

Somebody must labor to find financial support for this "abundant life" which is unearned and undeserved. The workers and the exhausted taxpayers must meet the bills for this bequest. The thrifty and ambitious are of necessity selected for involuntary sacrifice—a wholesale sacrifice since even now the United States is hurrying toward the brink of bankruptcy which the social security states of Germany, Great Britain and New Zealand have almost reached.

If private property cannot legally be expropriated why should medicine be despoiled? In the last fifty years medical men have found the cause, the prevention or cure, or all three of hydrophobia, typhoid fever, bubonic plague, tetanus, cholera, malaria, hookworm, whooping cough, scarlet fever, yellow fever, Malta fever, syphilis, cretinism, mixedema, diabetes, pellagra, pernicious anemia, scurvy, rickets, diphtheria, blindness of the new born and surgical conditions too numerous to rehearse.

Let it be emphasized here for the benefit of the captious and unthinking that the preservation of this professional excellence is what the doctors are striving to save rather than the collection of fees. The sciences such as medicine, physics, biology, astronomy, etc., are the most direct expressions of creative life and these creative impulses are directed to ends wherein one man's gain is not another's loss. Bureaucracy cannot develop such things but it can destroy them; hence science in all its relations should be as free as possible from Government control.

In spite of the splendid record just mentioned the Government proposes to destroy the personnel and nullify this entire life saving enter-

prise in order to establish an experimental bureaucracy urged by infatuated theorists whose bleak futilities remind one of Swift's Academy of Lagado where professors of economics, subsidized by Government, had been trying for years to extract sunbeams from cucumbers and to reconstruct and restore the original food forms out of the fragments and residues in human excrement.

Moreover all the suggested systems are ineffective as compared with American freedom from control. These statistics from the League of Nations of 1933 report a death rate in Germany and England, both Government controlled, of 11.2 and 12.3 per thousand respectively while in free America the rate was 10.7 per thousand. Infant death rates in Germany and England for the same period were 76 and 63 per one hundred thousand respectively and in America 59. Illinois at the same time showed a rate of 42.6. Diphtheria morbidity and mortality rates offer a fair test of the quality of medical care received by a community and the deaths for this period were 5.6 and 6.3 in Germany and England for each 100,000 of population and in America 3.9. In Illinois 2.8. Health improvement in the United States has been more rapid also than in other countries which have Government control.

Government control indeed! The flagrant inefficiency and corruption during the last four years of the spending orgy in legislative and administrative affairs and the extravagant increase in bureaus are fatal to any desire to invite more and wider opportunities for such political exploitation. This condition is still before us as the agents of Government with besotted vanity continue to pour the financial life blood of the nation into bottomless barrels.

The people likewise are deeply involved in this misbegotten scheme of persecution for they are one group of the intended victims and the most unfortunate. The general public is the offering about to be burnt on the flimsy altar of an irrational and unsound social experiment.

It may be admitted that more sickness does occur than is really necessary but this is not the fault of the doctor nor wholly that of the people. Social conditions are partly to blame. Many of the causes of disability could be removed such as bad housing, malnutrition,

imperfect sanitation and other handicaps which also might be diminished by the financial attention of the foundations if they were as interested in public welfare as in political prestige.

Illness is closely bound up with poverty and the best medical care imaginable is helpless to prevent these fundamental complications which are justly a problem of increased Government support for industry, and business according to the established principles of economic law or at least of refusal to interfere or compete with legitimate commercial and professional occupations. The emergency is one of poverty relief rather than of medical care.

Again an immense amount of sickness results from ignorance and heedlessness; an ignorance which deters a person from seeking medical care as a preventive measure and heedlessness about having the doctor when illness unmistakably appears. These qualities of mind are often found singly or together among men and women who have had opportunity to know better, as well as among the uneducated. Moreover about five per cent. of our citizens will have nothing to do with physicians in any physical disorder. The religious societies and cults especially labor under this curious and illogical inhibition.

On the other hand a large number of people are merely thoughtless and improvident. Elsewhere we reported how the Metropolitan Life Insurance Company discovered from a house to house canvass of several thousand families that the majority of parents who had failed to have their children inoculated against diphtheria recognized its value and believed in preventive medicine but neglected to have it done.

In Minneapolis, free vaccination was offered to the poor of Hennepin County by special arrangement but out of a population of nearly 500,000 only 5,747 took advantage of the offer. For diphtheria immunization under the same privilege only 5,375 applications were made. A compulsory law in these cases would be resented and carried to the courts and doubtless with reason for the way out of such conditions is not by coercion but by education.

Such education should be carried out not in medical matters alone nor yet in book knowledge but in manhood. Children and adults must be taught to avoid idleness, shiftlessness, and dependency as well as to cultivate honesty, re-



sourcefulness and industry. A people who look habitually to their Government to prompt or command them in all matters of private concern have their faculties only partially developed. If an American is to amount to anything he must rely upon himself and not upon the State and furthermore a healthy State can exist only when the men and women composing it lead wholesome and vigorous lives. Social advance like biologic growth is altogether a matter of individual education and slow evolution which is hastened by hardship. The worst lesson a man can learn is that he can depend on others and whine over his sufferings. We have had more grief from the Indian tribes we have pampered than from those we have wronged.

The attempt to correct physical infirmities, or morals by law results in resentment and mental deterioration in which humanity is deprived of pride, purpose and every incentive to serious effort. Neither voluntary nor compulsory health insurance will remedy these fundamental perversities as European statistics have clearly demonstrated. Our own country too has had its bitter experience on the folly of trying to correct morals by bureaucracy, or law.

An act which produces moral degeneration is politically wrong from the human standpoint for the test of every religious, political and educational system is the men that it forms. If disaster was deliberately intended, no better method than the Security Act could be devised to retard intellectual development, suppress independence of thought and promote shiftlessness, servility and crime. A man should be able to stand on his own feet and not be upheld indefinitely by his neighbors. No one is ever virtuous by compulsion, patronage or subvention nor is there any longer the least presumption that the social theorist in action is the best judge of the interests of the prospective beneficiary.

Another evil which is almost epidemic under social insurance is "malingering," or the "will-to-be-sick." This mental state creates a constantly increasing amount of disability and deprives men and women of their courage, and sense of responsibility. They become chronic dependents; thoroughly demoralized parasites who rot by inches in ignoble sloth.

In England in 1921, fourteen out of each hundred claimed sick benefits and this number

rose to 23 in 1927. With unmarried women the proportion rose from 12 to 21 during the same period and for married women from 19 to 38 out of every hundred.

Reliable estimates reveal that from 60% to 75% of those who apply for medical care under health insurance do not need it. People who are getting medical service through insurance are constantly consulting the doctor. They have paid out money as required either in taxes or from wages and are determined to get some attention in return. The dole system has disclosed the constant expansion of demands, the continual increase in applicants and the deteriorating effect upon the recipients who are the dupes and victims of a fevered fatuity. "Social insurance was inaugurated in Germany to help those in distress and today two-thirds of the nation are in distress. Unemployment insurance also was devised to relieve the needy and immediately everybody in Germany belonged to this class." (Black)

Diseased human beings cannot be treated according to standardized methods nor can the general public judge as to the actual requirements of medical care. Nothing is more individual than medical service and every attempt to treat illness according to classes, or groups meets with failure for the patient, and a nullification to the service which puts such experiments outside the law of generalization, of mass production, and of potential success.

Furthermore there is no secrecy in the chain store methods. It may be promised, as it was with the income tax, but sooner or later the disorder becomes a matter of record which is open for inspection by the curious, and to the gossip of the inquisitive neighbor. A political promise is no longer a pledge of honorable effort at performance.

Responsibility for lack of presumptive success in health insurance rests only partially upon the doctors or the art of medicine but largely upon the public which will not, on account of ingrained and unalterable human attributes, cooperate and these natural complications will always interfere with the proper functioning of any routine system of medical care, Governmental, or otherwise.

The State owes nothing to any man except the chance to work for life, liberty and pursuit

of happiness. Socialists crave all the privileges and perquisites of capitalism but only at the expense of others. The comforts must be given as a gratuity to drones and idlers. The refusal to work is their sole token of originality yet they hunger for an equal division of unequal earnings. Men are not equal except in opportunity, but socialism demands that they should be equal also in stupidity. The lion may eat straw like the ox and the weaned child put his hand on the Cockatrice's den but even so the draft horse will not win the race nor the pedigreed Arab pull the furrowing plow.

Socialized medicine is a system of free medical care provided by the State and organized and politically controlled in this instance by *Federal* appointees. The doctor also is an important factor not only from the viewpoint of citizenship and psychology but for professional reasons. He is the skillfully fashioned tool which must be utilized to operate a fallacious, subversive and illegal project.

Medical men realize fully their responsibility in the face of the radical changes going on in society and are making their own thoughtful studies in hundreds of different ways to adapt their work to the mechanization and industrialization of American progress. They realize also that medicine, like individual liberty, is a basic expression of the ethical life and suffers injury whenever and exactly to the degree that its freedom is encroached upon.

In the spirit of true conservatism, the medical profession wishes to proceed cautiously along scientific lines from known and tried experiences to an expanded form of operation. The haste advocated by the salaried altruists arouses doubt as to their purposes and a cynical disbelief in the incertitudes they so proudly parade. The world would be spared much trouble and suffering if amateur philanthropists had not inherited from their anthropoid ancestors a wild passion for action first and thought at long last—if at all. Gradual basic education is, as we learned with grief from prohibition, far more effective as an aid to progress than trial-and-error somersaults and meddlesome interference with normal human development.

The doctors recognize also their close relationship to their patients and are proud of it. They deeply resent any disturbance of this con-

fidential association from a well grounded conviction that by such a separation the health of the public and the future of American medicine, which is the best in the world today, will imperiled or destroyed. This bond of intimacy which is so indispensable to proper medical service is not preserved in any of the plans so far proposed but on the contrary they provide for its radical removal.

To the people who now enjoy the privilege of a quiet conference with a friendly physician, it will be a great shock to seek advice in a hurried interview with a perfect stranger who looks upon each visitor as a probable time-wasting cheat, while those who expect to receive high class service at small expense will be horrified if not ruined by the taxes they pay for unsatisfactory attention on account of the insistent demands of aliens, and others who-wish-to-be-sick and *who will not work*.

The doctor's mental attitude also is injuriously affected. In place of being anxious to cure his patients and receive his compensation and the gratitude of one who has been saved from the effects of a serious disorder the doctor remembers that a thousand people have been assigned to his care on a panel system; that he cannot do much even perfunctorily in the four or five minutes which he is allowed to use for the interview, and trusts only that the lay administrator who pays him his inconsiderable salary will be ignorant or blind and his own job secure. All reports agree that the doctor is required to occupy his brief visit with false gestures, instead of discovering the cause of the disturbance and advising appropriate remedies. In other words he is obliged by this system to stultify his knowledge, ability and conscience and to "boondoggle" in medicine at the price of human lives.

The doctor is too heavily overburdened to do research work or even to keep up with the advances of science although in Germany such ambition is useless since medical progress in that country has become wholly stagnant since the introduction of social insurance. His time is absorbed by the selfish calls of the would-be-sick, by the vast secretarial work and by the personal exactions of the lay administrator which deprive the doctor of all pride of performance and make him an unthinking drudge



satisfactory alone to the political appointee, unless like Mr. Filene, the administrator himself falls ill. Medical practice is reduced to physical endurance at the expense of brains and ability. Every visit results in a hunch diagnosis and a standardized prescription.

No unskilled workman toils so long, so unremittingly and as a rule so unprofitably as the general practitioner of medicine yet but few complaints have come from him on this account but everywhere, doctrinaires and socialists, salaried altruists and men and women in public office, especially the women in seats of authority who ought to be more enlightened, go about sowing seeds of antagonism to organized medicine.

Every public official is out to reform medical practice. The illusion seems to prevail that the doctors must live in a fed and fatted monotony because they are too proud, honest, self-reliant and public spirited to ask for relief. No other professional body has ever been so harassed and misused by an ignorant, misguided laity and by self seeking exploiters among professional altruists and political philanthropists.

The various systems of health insurance have never provided for regular attention to the indigent sick. This burden has been carried by the doctors and through the constant encroachments on the regular practice of medicine by the Government, the pay clinics, and the foundations, the doctor himself may soon gravitate to the indigent class for he cannot continue indefinitely to care for the wholly indigent and have his private patients switched into the numerous bureaus, free clinics and Government hospitals. The medical profession will soon find a solution to the present problems if the relationship of patient and doctor is undisturbed by the officious interference of the Pharisees and Government bureaus.

Moreover no system thus far suggested has thoroughly considered preventive medicine in its relation to an indifferent, or hostile society. The doctors regularly insist on periodic health examinations but how often do they meet with public cooperation? Is this a medical action to be conducted by force and is it worth while? Laws can be passed and are passed only to become null and void through lack of civic interest. Preventive medicine, which might be a

logical function of Government, is not so regarded in the operation of any measure hitherto suggested but attention is wholly directed to the care of the sick which is peculiarly a personal matter in which Government should have no concern.

The lay administrators are an essential part of every project thus far proposed and usually outnumber the trained medical employes and of course receive larger salaries. The bureau is quickly responsive to political control and the personnel is filled with the parasites of ward politics and by medical men who for lack of resolution or native ability are attracted to snug political berths rather than to the burdensome responsibilities of private practice. Bureaucracy controls . . . bureaucracy, the everlasting slave of politics, and the funds allotted for medical care are Sweitzered by administrative juggling until none remains for the sick. The rewards go to political skill rather than to professional skill and proper medical service becomes impossible.

If, instead of fixing their eyes on the sun dogs of socialism, the unbiased men and organizations who favor the so-called "Social Security" principles would study them in the light of legal decisions and if they would carefully analyze the results of the proposed innovations not alone in other countries but from a knowledge of that human nature which does not change, the ineptitude, errors and racketeering possibilities of the present schemes would be nakedly exposed. Unhappily the holy name of altruism—social emotion made functional—has been replaced by a bastard commercialism, a personal greed which stands in the way of unselfish, public spirited investigation.

The doctors, wedded to their duties, have rarely been political partisans but the time is at hand when they must act definitely in politics or they will have no duties to attend. The medical man knows humanity intimately as child and adult and he is able to judge, work and vote for those candidates most competent to conduct local, State and National affairs.

An emergency is upon us as professional men and we cannot rely upon the Roman formula that "the Consuls will see to it that the Republic receives no harm," but we must ourselves look, think and act regardless of party affilia-

tions, for the best advantage of the State and the priceless freedom of its citizens.

The emergency must be met and surmounted for this "Social Security" scheme means security, undoubtedly, for the politician and bureaucrat but only poverty, degeneration and slavery for the people they exploit.

## THE SOCIAL SECURITY ACT AND ITS RELATION TO THE MEDICAL PROFESSION

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The Federal Social Security Act (Public No. 271, 74th Congress, approved August 14, 1935) is substantially a heterogeneous group of enactments of uncorrelated purposes, consolidated in a single act under eleven titles. Generally speaking, by the Act the Federal Government assumes certain responsibilities, which in the past were believed, under our American scheme of government, to be the concern of the several States alone, and not of the Federal Government. The Federal Government assumes at least partial responsibility for the support in future years of various types of indigents. It undertakes, too, by various grants to the States, to shape and supervise, if not to dictate, certain state public health and public welfare policies. It undertakes, also, to provide so-called federal old-age benefits; in effect, annuity payments to employees effective in their old age, to be financed by federal taxes on private payrolls, to be paid by employer and employee alike. It seeks to force the Several States to enact state unemployment compensation laws, the principles of which are dictated by the Federal Government. This compulsion it exercises by imposing another federal tax on private payrolls and by allowing taxpayers to credit against that tax amounts paid by virtue of a state unemployment compensation law approved by the designated federal agency.

For the purpose of discussion, the provisions of the act will be classified more or less arbitrarily as follows:

1. Those provisions authorizing grants to

States for certain public health and welfare services, such as maternal and child health services, services for crippled children, child welfare services, vocational rehabilitation, and public health work.

2. Those provisions authorizing grants to States for the payment of cash gratuities to individuals, such as old-age assistance, aid to dependent children, and aid to the blind.

3. Those titles imposing two distinct sets of federal taxes on the wages paid employees.

4. That title relating to grants to States for unemployment compensation administration, and

5. That title relating to federal old-age benefits.

But two of the classes of provisions as just enumerated are of direct interest to the medical profession, as such: Class 1, those provisions authorizing grants to States for public health and welfare activities, and class 3, those provisions imposing two distinct sets of new federal taxes on private payrolls. This paper accordingly will be limited to a consideration of those two classes.

### GRANTS TO STATES FOR PUBLIC HEALTH AND WELFARE SERVICES

The provisions relating to this class of grants are found in Titles V and VI of the Act. Title V is captioned "Grants to States for Maternal and Child Welfare" and contains four parts devoted respectively, to grants for maternal and child health services, for services for crippled children, for child welfare services and for vocational rehabilitation. Title VI is captioned "Public Health Work." Now to discuss each type of grant.

*Maternal and Child Health.*—To enable, in the words of the Act, each State "to extend and improve, as far as practicable under the conditions in such State, services for promoting the health of mothers and children, especially in rural areas, and in areas suffering from severe economic distress," Title V, Part 1, of the Act, authorizes the appropriation annually of \$3,800,000.

This is the same scheme as that involved in the so-called Sheppard-Towner law, of recent memory, but only on a larger scale. Precisely what the contemplated services are to consist of the law nowhere makes clear. In effect, those

\*Read before the Northwest Regional Conference, Chicago, Illinois, February 16, 1936.



services will be what the Children's Bureau of the Department of Labor, which is the designated federal administrative agency with respect to these provisions, chooses to make them.

The source of the Bureau's power over the States with respect to these vaguely defined services to be rendered by the States is the purse string. All grants to aid the States in this work, whatever it may be, are conditioned on approval by the Bureau of any proposed state plan. If a state plan is so approved, that State will receive annually from the Federal Treasury \$20,000 and such proportion of \$1,800,000 as live births in that State bear to total live births in the United States. It can also receive a part of \$980,000, which the Bureau is authorized to allot to the States "according to the financial need of each State for assistance in carrying out its state plan, as determined. . . . after taking into consideration the number of live births in such State." A State favored with these allotments must match them dollar for dollar with state funds.

Before the Children's Bureau can approve a state plan, according to the act, the plan must provide 1. for financial participation by the State; 2. for the administration of the plan by the state health agency or the supervision of the administration of the plan by the state health agency; 3. such methods of administration (other than those relating to selection, tenure of office, and compensation of personnel) as are necessary for the efficient operation of the plan; 4. that the state health agency will make such reports, in such form and containing such information, as the Secretary of Labor may from time to time require, and comply with such provisions as he may from time to time find necessary to assure the correctness and verification of such reports; 5. for the extension and improvement of local maternal and child health services administered by local child health units; 6. for cooperation with medical, nursing, and welfare groups and organizations; and 7. for the development of demonstration services in needy areas and among groups in special need.

After a State plan has been approved, a federal grant may be suspended if the Children's Bureau finds that in the administration of the plan there is a failure to comply substantially

with the requirements, just noted, for the approval of a state plan.

*Services for Crippled Children.*—To enable each State "to extend and improve (especially in rural areas and in areas suffering from severe economic distress) . . . services for locating crippled children, and for providing medical, surgical, corrective and other services and care, and facilities for diagnosis, hospitalization, and aftercare, for children who are crippled or who are suffering from conditions which lead to crippling," Title V, Part 2, of the Act, authorizes the annual appropriation of \$2,850,000.

Again, the Act makes no specific enumeration or description of the contemplated services, other than the language just quoted. And again, as to just what those services consist of will depend to a great extent on the discretion of the federal agency charged with the allotment of this annual appropriation and the supervision of state activities in this regard—again, the Children's Bureau of the Department of Labor.

To each State having a state plan relative to the indicated services, approved by the Children's Bureau, there will be allotted annually \$20,000. The remaining \$1,830,000 of the authorized appropriation, is to be distributed, in the words of the act, "to the States according to the need of each State as determined . . . . after taking into consideration the number of crippled children in such State in need of the services. . . . and the cost of furnishing such services to them."

States favored with allotments must match them dollar for dollar.

The act, as in connection with grants for maternal and child health, sets forth certain essentials, as it were, that must appear in a state plan before it can be approved by the Children's Bureau. These essentials are similar to the essentials required in the state plan for maternal and child health. For reasons similar to the reasons already discussed in connection with federal grants for maternal and child health, a federal grant once allotted to a state may be suspended.

*Child Welfare Services.*—Title V, Part 3, of the Act, authorizes an annual distribution, under, in effect, the supervision of the Children's Bureau, of \$1,500,000 to the States for certain, vaguely defined, child welfare services in predominantly rural areas. No further com-

ments on these provisions will be made because of their relative lack of general medical interest.

*Vocational Rehabilitation.*—Part 4, of Title V, of the Act, when read in connection with other federal legislation which it supplements, authorizes the appropriation of \$1,841,000 for each of the fiscal years of 1936 and 1937, and thereafter, annually, of \$1,938,000 to the States to extend and strengthen "their programs of vocational rehabilitation of the physically disabled." Each State, having a State plan in that regard satisfactory to the Federal Board of Vocational rehabilitation, is to receive such proportion of the remainder of this sum after deducting \$5,000, which is allotted to Hawaii, as their population bears to the population of the United States, but no State is to receive less than \$10,000. Incidentally, the State must match this federal appropriation dollar for dollar.

*Public Health Work.*—Title VI authorizes other annual federal appropriations to be distributed among the States to assist "States, counties, health districts, and other political subdivisions of the States in establishing and maintaining adequate public-health services, including the training of personnel for State and local health work." The amount authorized to be so distributed annually is \$8,000,000.

It is submitted again that the services contemplated are vaguely stated and a great deal rests in the discretion of the federal administrative agency selected, namely, the Surgeon General of the United States Public Health Service, since his approval of a state plan is a condition precedent to receipt of federal funds by that State.

The amount of the allotment to each State having an approved state plan is to be determined, according to the Act, by the Surgeon General on the basis of 1. population, 2. special health problems, and 3. financial needs; of the respective States. Regulations promulgated by the Surgeon General, under the authority of the Act, provide that 57½% of the \$8,000,000 is to be distributed to the States on a "per capita basis;" 22½% will be distributed or allotted to States on the basis of special health problems, including the training of personnel; and 20% on the basis of financial need. Time does not permit any more discussion of the Surgeon

General's regulations other than to say that the regulations appear to contemplate that federal grants shall not replace any portion of existing state appropriations for this work—they will be used not to keep public health work on a stationary basis but to enable state programs to be enlarged and extended. While the act does not so provide, the Surgeon General's regulations seek to require the States to match the federal grants dollar for dollar.

Title VI also contains provisions authorizing the annual appropriation of \$2,000,000 to the Public Health Service, to be used "for investigation of disease and problems of sanitation. . . . and for the pay and allowances and traveling expenses of personnel of the Public Health Service. . . . engaged in such investigations or detailed to cooperate with the health authorities of any State."

Before discontinuing the discussion relative to grants to States for public health and welfare services and for public health work, it may be well to point out that while these appropriations were authorized in August, 1935, due to a filibuster conducted by the late senator from Louisiana, a bill making the appropriations called for by the Act had not been enacted when the Congress adjourned and actually no appropriations have yet been made. Funds seem to have been found somewhere to enable the various federal agencies named in the Act to organize and start preliminary functioning. But, so far as is known, no grants or allotments were made to a State prior to February 1. However, the Supplementary Appropriation Act, fiscal year, 1936, (Public No. 440, 74th Congress, Approved Feb. 11, 1936) provides sufficient funds to enable a distribution of 5/12 of the amounts authorized in the Act for fiscal year ending June 30, 1936.

#### TAX PROVISIONS

Titles VIII and IX impose two distinct sets of taxes on employers and will obviously affect such physicians as are employers. Employers may be liable for both taxes.

An article on these provisions as they affect physicians and hospitals, appearing in *The Journal A. M. A.* for January 25, 1936, at page 322, goes into more detail than time will now permit.

In brief, the taxes to be imposed are not applicable with respect to certain types of employ-



ment. Both titles provide, so far as is material to physicians, that their provisions are not to apply to—

1. Agricultural labor,
2. Domestic labor in a private home,
3. Service performed in the employ of the United States, a State or a political subdivision thereof, and

4. Service performed in the employ of a corporation, fund or foundation organized and operated exclusively for religious, charitable, scientific, or educational purposes, no part of the net earnings of which inures to the benefit of any private shareholder or individual. These provisions will exclude from the tax all hospitals except those organized and operated for profit.

Bearing in mind the exemptions just noted, Article VIII imposes a tax on employers in accordance with the wages paid each employee. It also imposes a similar and equal tax on employees based also on the wages received in a taxable employment. These taxes are not now effective but with respect to wages paid in a taxable employment during the year of 1937 and thereafter a tax equal to the following percentages will be imposed on employers: One per cent. of wages paid for employment in 1937, 1938 and 1939; 1.5% of the wages paid in 1940, 1941, and 1942; 2% of the wages paid in 1943, 1944, and 1945; 2.5% of the wages paid in 1946, 1947, and 1948; and 3% of the wages paid thereafter. A similar and equal tax will be also imposed on employees. Further, the Act requires the employer to collect the tax that is imposed on employees by proper, proportionate deductions from the wages of employees as and when paid. The purpose of this tax is to provide funds for the payment to eligible employees of the federal old-age benefits provided for in Title II of the Act.

Of more pressing, immediate concern is the tax imposed by Title IX. Without question, the taxes contemplated by this article are imposed to provide or aid in the providing of funds for the payment of unemployment compensation to eligible workers in accordance with state laws. This tax, however, is imposed solely on employers of eight or more, bearing in mind the exceptions already noted, and not on employees. This tax varies according to the year of employment. Thus for employment in 1936, the tax

rate is 1% of wages paid; for 1937, 2%, thereafter, 3%.

An employer who has contributed to a state fund under a state unemployment compensation law approved by the Social Security Board is entitled to deduct from this federal tax the amount of the contributions made to the state fund, up to 90 per cent. of the federal tax. The act sets down certain requirements to which a state unemployment compensation law must conform before the Social Security Board may approve it. Since an employer in whose State there is no unemployment compensation law or an employer who contributes under a state law not approved by this federal agency must pay the federal tax in its entirety, it is obvious that this article tends to force the several States to adopt not only unemployment compensation laws, but also to adopt only such unemployment compensation laws as are acceptable to the Federal Government.

These, in brief, are the provisions of the Social Security Act that appear at first blush to affect most intimately physicians. The implications arising from the Act are far-reaching and tremendous. If the philosophy underlying the Act maintains its ascendancy certainly we must prepare to adjust ourselves to a revolutionary change in the concept and functions of government and the multitudinous and grave problems necessarily ensuing. An opinion may be ventured, however, in view of recent Supreme Court decisions, that the taxing provisions of the Act, when considered in connection with their obvious purposes, are of extremely questionable constitutionality. Meanwhile until the Act is repealed or is thrown out, in part or in whole, by the Supreme Court, physicians affected can only meticulously obey its mandates.

## RECIPROCAL RELATIONS BETWEEN STATE MEDICAL SOCIETIES

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Secretary, Illinois State Medical Society

MONMOUTH, ILL.

When we review the Constitution of most of our state medical societies we will invariably find foremost among the purposes of the society something like the following: "to federate and

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bring into one compact organization the entire medical profession of the state, and to unite with other state medical societies to form the American Medical Association."

With this purpose in mind we often wonder if our state medical societies are actually co-operating as thoroughly in many respects as they should. Likewise, are we doing all that we can to serve best the interests of the entire medical profession of our respective states? We have realized more thoroughly than ever before in recent years, that it has become necessary for the entire membership of our societies to work together constantly if we hope to defeat the activities of a relatively few laymen who desire to bring about a complete change in the manner of providing medical care for the American people.

The last annual report of the Secretary of the American Medical Association shows that there are forty-eight state medical societies and six district or territorial societies which together form the American Medical Association. In the same report we note that there are more than 2,500 component county society units, which we naturally refer to as "basic units" of our entire medical organization.

Although we realize that the county medical society is the basic unit of our organization, we do not believe it advisable or possible for each of these component county societies to act and work independently without the assistance and the guidance of the state society and of the American Medical Association. It has been our opinion over a considerable period of time that the A. M. A. with its well organized bureaus, councils, committees, etc., should guide the smaller units in their various endeavors.

The writer has visited the various departments of the American Medical Association many times during the past twenty-five years and has always been impressed with many things the Association does for the benefit of organized medicine, and also for the protection of the public. These visits have made us believe more thoroughly than ever before, that a greater effort should be made on the part of our parent organization to aid in standardizing state and county medical society activities.

Many of our state societies had committees on, or departments of medical economics, several

years before the Bureau of Medical Economics of the American Medical Association was organized, yet prior to the development of the latter, the ideas pertaining to medical economics in various states differed quite materially. Under the supervision of Dr. R. G. Leland, its director, this Bureau has done a great service for the medical profession of the country and in our opinion at the present time, it is one of the most valuable functions of the A. M. A.

Realizing the fact that all state medical societies are working primarily for the best interests of the physicians of the country and to insure more adequate care for the sick, it is quite obvious that we should develop the closest spirit of harmony and cooperation possible among our state societies.

Whenever a state society undertakes a radical change in the usual routine, in our opinion, this information should be given to other state medical societies before it is given to the press. We have only to recall a few instances during the past two years where state societies have recommended procedures which to many seem to be contrary to the "ten point program" adopted by the A. M. A. House of Delegates at the Cleveland session, to appreciate this fact.

From our personal observations over a period of twenty-seven years as a member of organized medicine, we are thoroughly convinced that our county medical societies are actually looking for leadership as a stimulus for their activities, and that they will invariably appreciate receiving suggestions or recommendations from our National and State organizations. It is quite obvious that if 2,500 component county societies would develop individual projects and carry them out independently with no consideration for other societies or for the parent organizations, we would have a most chaotic state of affairs with pandemonium instead of success.

During the past few months high schools, colleges and universities throughout the country have been debating on the so-called "state medicine" question, and have asked our societies to furnish material which will be of value to them in preparing their data. It is the opinion of the writer that the American Medical Association is best fitted of all medical organizations in the country, to get up the proper type of handbook which can be used in all states. We



have been sending out for the past four years, from the Educational Committee of the Illinois State Medical Society, packets of material of interest to debaters on this subject to colleges and universities in Illinois and many packets to those in other states who have requested them. This subject has therefore been a topic for debate in various educational institutions over some period of time.

It is quite apparent to us that the placing of this subject before students for debate is part of a preconceived plan to instil into the fertile brains of students, a demand for some form of sickness insurance so that the subject may be brought up in later years if it is not developed in the near future.

Although we have perhaps failed to do so in many instances in the past, it is our opinion that requests for service coming to any state medical society from other states, should be referred to the society in the state where the request originates. Only recently we have been informed by secretaries of other state societies that students or debate coaches in schools in Illinois have requested debate material from them, and our check up has shown that similar requests have come to our society from the same source, and have been filled by our own committees.

It is quite logical to suspect from these experiences that many wise students desire to get information from several societies in the belief that one state society may send information that is not included in literature sent out by other societies, and on the other hand it is quite possible that some shrewd students may hope to find a variance of opinion existing in different states especially on the "state medicine" question. When our literature is more definitely standardized on these important subjects, we may be sure that there will be a greater uniformity in the expressions of opinion which emanate from the state medical societies of the various states.

At the present time one of our important considerations along economic lines is the eventual operation of the Social Security Act. There are several portions of this act which are of interest to the medical profession as physicians, while the entire act is of interest to us as taxpayers. In regard to those portions which deal with matters pertaining to health, it is necessary for

some department in our state government to submit a proposed program which will be subject to the approval of the Secretary of Labor or the Chief of the Children's Bureau in that Department, or to the Surgeon General of the U. S. Public Health Service. It seems quite logical to believe that there are important reasons why we should have similar ideas to present to the proper state departments in adjoining states, but to our knowledge the large group of social workers have proposed more plans and have advanced more ideas on these subjects than we have in our medical societies.

The Director of the Illinois Department of Public Health has repeatedly conferred with the Council, officers and special committees of the Illinois State Medical Society for a thorough discussion of these important matters and there has constantly been a marked uniformity of opinion expressed by all.

In order that we may complete this presentation within the time allotted to us, we will hurriedly outline a number of activities of state medical societies which we believe should be standardized or at least where a closer cooperation among our societies is desirable.

#### THE ANNUAL MEETING

Our societies should endeavor to avoid a conflict in the date of the annual meeting for various reasons. Most of us desire to have a good representation of technical exhibits at the meeting both on account of the revenue which is received and because they are invariably of interest to our members who are present. It is quite obvious that exhibitors cannot be at two meetings at the same time. We believe that an exchange of exhibitor lists among societies is desirable, for frequently one of us will discover an ethical exhibitor who has not previously attended the meetings and would be willing perhaps, to be present at several of them. Realizing the fact that our list of prospective exhibitors is limited, an exchange of exhibitor lists may be of mutual advantage to all.

Over a period of years, most of us have learned things concerning certain exhibitors at the annual meeting which may bar them from future meetings, and this information likewise, should be passed on to other societies.

We believe the old system of sending official delegates to adjoining state medical society an-

nual meetings should be revived. During the past three years we have visited several annual meetings in other states and invariably we have been well repaid for the time and effort required to make the visits. It is also of much interest for any of us to read the transactions of the House of Delegates of other state medical societies and invariably we will get many ideas which are of interest to our own society.

#### THE COUNCIL, OR BOARD OF TRUSTEES

The work of these official bodies in our respective societies is quite similar, and occasionally problems will arise in one state before they develop in another. Important problems and actions can profitably be reported to other societies, and it will be to their mutual advantage to maintain a closer relationship with each other. Resolutions passed by the House of Delegates of any society which are of an unusual nature should likewise be reported to other societies for similar reasons.

The writer has for many years considered the advisability of having an interstate liaison committee consisting of members of the societies of several adjoining states, and when unusual problems are presented for discussion and subsequent action, there may be a decided advantage in a meeting of such a committee which should report back to the individual societies.

#### MEDICAL CARE FOR THE INDIGENT

In discussing this subject, we realize that during the past three years we have been compelled to consider indigent medical care as of two types:

1. As a responsibility of state and Federal Relief Administrations.
2. As a responsibility of local officials.

About two and a half years ago our state medical societies were asked to submit a plan for providing medical care to the unemployed indigents on relief; plans which would be acceptable to the Federal and State Relief Administrations. We have had almost as many different plans submitted and finally approved, as we have state medical societies throughout the country. There has been a vast difference in the various plans, both as to their provisions for care, and relative to payments for service.

Provisions have been made in some states whereby physicians have received remuneration

for emergency surgical operations, hospitalized cases, and for anesthetics, while in other states, no such provisions were incorporated in the plan. If at the time when negotiations were under way for the creation of these various plans, such a liaison interstate committee had been available, it is most likely that there would have been a greater uniformity in the plans in adjoining states. Medical care for indigents as a problem, is quite similar in all states, even though there are many purely local conditions to be met in this work. It is also true that our state laws pertaining to the care of the normal indigent vary somewhat but the basic problems are quite similar. The plan which has been in operation throughout the country over a considerable period of time, whereby individual physicians submit a bid and a contract is awarded to the lowest bidder, is in our opinion, pernicious and should be entirely abolished. We still insist that it is no more possible or fair to attempt to estimate the amount of sickness in a community a year in advance than it is to attempt to estimate the amount of fuel, food or clothing the normal indigent will need, and no Board of supervisors would attempt to ask for bids for the supplying of these other essential commodities, as they do for medical care.

An interesting example of this type of practice recently came to our attention from a fair sized city in Illinois. One physician received the contract for supplying necessary medical care to the indigent for the sum of \$1400.00 per year. He furnished all drugs and supplies; his annual report shows that during the past year he pulled 542 teeth, performed five hysterectomies, 72 other abdominal operations, attended 55 obstetrical cases nearly all of them in the homes. During the year he recorded 5,703 office visits, 3,223 residence calls, 66 visits to the county home, 57 police calls, 15 to the county jail, and 177 calls to the rural districts, the distance varying from eight to twenty-three miles each. It is quite obvious that this contract physician actually earned the money which was paid for his services.

It has been most unfortunate in many of our counties that all society members have refused to submit a bid for a contract as county physician only to have some non-member accept one at a rate which is invariably, ridiculously low.



# COOPERATION WITH STATE HEALTH DEPARTMENTS

The state medical society and its entire membership should cooperate thoroughly with the State Department of Health. We are most fortunate in this section of the country to have in our states, directors or commissioners of health who are active members of our state medical societies and who invariably seek the advice of the society before undertaking new activities. Now that the Federal Social Security Act is a law and no longer a controversial subject, we should endeavor to aid our Health Directors in developing plans for using the allocated funds so that they will not interfere with ethical medical practice but perhaps aid the profession in our work.

We have received reports recently from many state medical society secretaries and the state health commissioners of the same states, outlining their proposed plans and assuring us that same had been approved by the Council and Advisory Committee of their Societies.

Whether or not the U. S. Public Health Service or their zone directors will approve them as planned remains to be seen. As was recently stated by Dr. W. W. Bauer, Director of the A. M. A. Bureau of Public Health and Education, "the patient of the physician and the client of the Health Officer are one and the same person and his health considerations are of mutual interest to both."

When we realize that the physician's aim is to give adequate care to the sick and the Health Officer's duty is principally to control epidemics and minimize illness, it is quite obvious that there should be no conflict between them and that complete cooperation is mutually advantageous.

## CONCLUSIONS

It is our opinion that our state medical societies should work together at all times. Whenever state medical societies undertake to develop a radical change in the usual routine they should invariably report their action to other societies before the information is disseminated through the press. Adjoining societies will be benefited through the creation of an Interstate Committee composed of an equal number of representatives from each society to exchange actions and ideas on many important subjects and perhaps have

an occasional meeting when it is deemed advisable.

Although we have no intention of criticizing the American Medical Association which is our greatest of all medical organizations in existence, we have learned through our continuous associations with ninety-six county medical societies throughout Illinois and over a period of twelve years, that the county societies look to the parent organization for leadership in directing their activities, to create the greatest spirit of harmony, and to aid materially in improving the morale of the physician at the cross roads as well as that of our urban practitioners.

## PRESIDENT'S ADDRESS

OLIVER J. FAY, M.D.

DES MOINES, IOWA

I have often said—and I lay no claim to originality in so saying—that the medical profession suffers from a lack of *organization* and a plethora of *organizations*. Our interest and our interests are so diffused among a large number of concentric groups and special societies that we have become an unwieldy, loosely-knit profession, lacking essential solidarity because we often fail to see the woods for the many trees. The American Medical Association, composed of state medical units which are in turn made up of the membership of county medical societies, affords an ideal set-up for professional democracy (I am using that word in its larger and not in any partisan sense), but its value and effectiveness is dependent upon numerical strength, the spirit of unity, and the active interest of the membership of these county societies. There is undoubtedly place for many other medical organizations, but I feel strongly that these should not seek to undermine but rather strive to build up the spirit of professional unity. Lest this statement should seem to imply criticism of some professional organizations, I want to pay particular tribute to this Northwest Medical Conference as an organization *sui generis*, at least in the area it represents. The name itself suggests that its far-sighted founder had no intention of establishing just another medical society, but sought merely to foster the informal, helpful discussion of timely medical problems.

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The holding of its one day session on Sunday, thus making possible attendance at this Conference with the least possible conflict with professional duties is further evidence of the desire to make these gatherings a practical aid to the greatest number. The informality of membership is further evidence of its practical spirit of fellowship, its friendly desire to have every interested physician participate in these conferences. Our programs are not scientific, but each year it becomes increasingly apparent that conditions of practice, inter- and intra-professional relationships, play a vital part in the practice of scientific medicine. Discussion of these conditions, of these relationships, any step towards the solution of the problems they present, is, therefore, a contribution to medical progress.

I hold it to be incontrovertible that a shackled medical profession cannot best serve humanity. It is true that in the benighted ages when persecution, imprisonment, and even death by torture threatened the seeker after scientific truth there were still always those who dared to carry on. Yet who can deny that these early scientists were hampered in their truth seeking, that centuries passed with little progress made? And if now and then some scientific pioneer stumbled upon some precious bit of truth as he groped in the darkness, it profited his fellowmen but little since the very fact that he had made a discovery had to be suppressed. Looking back on the Dark Ages, we may feel that we are indeed free, but even freedom may be a relative thing. Today the physician may publish scientific facts with the same freedom and immunity from prosecution that is accorded the patent medicine manufacturer when he publishes pseudo-scientific fancies, but this apparent freedom should not blind us to the imminent peril of bureaucratic control of clinical medicine. It is not easy to understand the apparent indifference of our profession as a whole to the boundless implications of the Social Securities Act. This Act is the more menacing because its provisions for medical regimentation are not definitely outlined; its scope is limitless because its provisions are thus undefined. Title VII of the Act provides for the appointment of a Social Security Board and under Section 702 of this Title, the Board is charged with the "duty of studying and making recommendations as to the

most effective methods of providing security through social insurance, and as to legislation and matters of administrative policy concerning old age pensions, unemployment compensation, and related subjects." There can be no question but that medical insurance and the methods for bureaucratic control of the medical profession are two issues thus cavalierly included as "related subjects." The first appointments to the Social Security Board should have dispelled any lurking hope that some of us might have cherished that the medical problems involved were to be considered as such, and not as mere incidental issues for the sociologists to take in their stride. At no time has the medical profession been given a representative voice in the formulation of plans for the extension of medical service under theegis of the Federal government. I say a "representative voice" advisedly, for on the one occasion when a pseudo-conference was called, it was a conference in name only; the representatives of organized medicine were invited, not to speak from personal knowledge of the actual conditions, not to discuss the pressing problems of medical practice from the vantage point of physicians who know not only their own but also the patients' standpoint; they were invited merely to sign on the dotted line.

On the one hand, we are told that anything so vital to the welfare of the nation as the health of its people is or should be under federal control. Yet in the provisions of the Social Security Act, there is little to suggest that the preservation of the health of the nation is one of the major considerations of our government. The Child Welfare Services are extended, it is true; larger appropriations are provided for this work, but such services are administered by the Children's Bureau, and this Bureau remains under the control of the Secretary of Labor. There are provisions for extension of Public Health Service, and for larger expenditures for such services, and this work is to continue under the supervision of the Surgeon General of the Public Health Service.

It must be remembered, however, that the Surgeon General works under, his recommendations must be submitted to, are subject to the approval or veto of the Secretary of the Treasury. The allotment to any state under Title VI



of the Social Security Act is made only after the Surgeon General and his superior, the Secretary of the Treasury, have approved the plans for health work submitted by the health authorities of the given state. Since the amount to be allotted to the individual states is not fixed under the Act but the provisions governing it are the most elastic; (the sum for each state is to be determined "on the basis of 1. population; 2. the special health problems; and 3. the financial needs" of the respective states), it is obvious that the provisions for the health of the nation have been made of major *political* importance. This very fact destroys any faith which we might have had in its importance in improving the health of the nation.

We may recognize these measures for what they are, effective political expedients which violate the fundamental principles of true statesmanship, but if the act is held constitutional, there is no recourse for the individual, nor for the profession *in so far as the fixed provisions of the Act are concerned*. But we must not confuse these fixed provisions with the far-reaching possibilities of health insurance as envisaged by, but by no means provided for, in the establishment of a Social Security Board under Title VII. There can be no question but that health insurance with its corollary, the bureaucratic control of medical practice, is intended, is planned as the logical next step in the socializing process, as a powerful lever in the political machine. *But that lever is powerless to function without the cogs which we represent*, and so long as health insurance is not an actual fact—and today it exists only as a politician's dream—it is for us as a united profession to fight the good fight. The politician is a menace—he neither knows nor cares whether the health of the nation would in reality be endangered or improved by health insurance. He is concerned with the political value of promises, not with their fulfillment or their non-fulfilment. He takes no cognizance of the fact that there are available records of a national experience of fifty years with health insurance; a graphic record of its failure and of its role as a major factor in the subjugation of a world power by a dictator. The experience of every country where it has been given a trial over a period of years has been a tragic one; the political power that called it into

being has found itself in the role of Frankenstein, impotent to control the monster it had called into being, yet the politicians are unwilling to forego the services of so powerful a political ally. "After me the deluge" is still the watchword of any party in power.

But it is not the politician himself who constitutes the gravest danger to our standards of health, to our professional ideals, to the further advance of medical science. The greatest danger is from sedition within our own ranks. There are men now in public health service who, lacking the broad professional perspective which would enable them to see where lies the dividing line between health service to the public as a whole and health service to the individual, honestly believe that public health insurance would bring a greater measure of health to the country. To them I can only say, in recognition of their sincerity and of their failure to read and interpret available records: Take your head from the sand; get your information first hand from history's scroll, not predigested by the sociologists. They may be dreamers, but their dreams are often dreams of personal power.

There are others in public health service who, honest in their self-seeking, see a bright future for themselves in this branch of government employment if the scope of this service has a mushroom growth. I can honor them for their frankness if not for their high ideals of service. Still others, having found the field of private practice a precarious one during these lean years, would gladly exchange their birthright of professional freedom for a mess of pottage, provided at regular intervals by a government pay check, and frankly so state; or who, lacking the courage to state their case so baldly, profess to see a mutual advantage to patient and to physician in the provision of state medicine. For these, I have pity rather than censure; it is not easy to think straight on an empty stomach. But a majority of those within the ranks of the profession who advocate state medicine do so because they do not think at all, because they are content to follow the lines of least resistance, to subscribe to a policy of laissez-faire on the ground that it is useless to struggle against the inevitable. It *is* inevitable if we sit idly by while our theorists, through cupidity or stupidity, go up and down the land, telling of the fanciful blessings of

health insurance freely dispensed by a benign government. Our people as a whole have been thoroughly conditioned to the lure of the siren song of something for nothing. Few indeed there are who pause to think that today as in the past, the piper must eventually be paid—unless we who should know are willing to take the trouble to inform them.

We of the medical profession should see that the public is informed of the full implication of the medical phases of the Social Security Act; but before we can do that we must ourselves be informed. Few of us have any conception of the infinite ramifications of the term social insurance. We may wholeheartedly endorse the extension of child welfare work, of the work of rehabilitation of the handicapped, of the public health field, but it should be clearly understood that always there is a logical, clear-cut line that should be drawn between federal health work and the care of the sick. A single illustration will suffice: The prevention and the control of an epidemic—of typhoid fever let us say—is obviously not a task for the individual physician, but one which may best be carried out by public health authorities—whether community, state or federal will depend upon the circumstances and the locality. The care of the patient who has contracted typhoid fever is just as clearly the province of the private practitioner who will co-operate with, and should be given the co-operation of public health officials. There should be no conflict of opinion here: health conservation is a national responsibility so long as we apply the term literally to mean the conserving of the health of the nation through education, through the enforcement of sanitary regulations of general application, through co-operation with state and local health units in these fields. Sickness insurance is quite another matter; it is not a national responsibility, and any attempt to place the responsibility for the care of the individual sick under bureaucratic control, to regiment such care, is fraught with danger to the individual and to the nation.

We might be pardoned for believing bureaucratic controlled medical care would bring us one step nearer to Utopia had the idea really originated with our brain-trusters, had we no experience to guide us. But we have the record of its trial and its failure in various other coun-

tries which have tried the experiment with disastrous results. The record of that failure is not a matter of opinion; it is written large in the steadily mounting number of days of annual disability, in increasing costs of administration, in dwindling sick benefits for the disabled, in lowered income and lowered morale of the medical profession. And most dangerous of all, perhaps, is the fact that a nation once committed to the venture can find no logical stopping place. The general public may think of sick insurance as a happy means of having unlimited medical attention without the unpleasant necessity of paying doctor bills. To some of the medical profession sick insurance is assumed to promise a definite, limited number of hours of work and the opportunity of doing that work freed from the element of financial worry. In reality sick insurance means much less and much more. The mere fact that someone else is paying for the service puts the sick man on his guard—is he receiving all that he would receive if he were calling the tune? Since he is getting something for nothing he is inclined to insist upon far more than he would ask if he were footing the bill, and that tendency is definitely increased when sick benefits are paid, the logical next step. Someone must pay, that mythical someone who in the last analysis is the taxpayer. There is, though we may be temporarily blinded to that fact, a bottom to his pocket, and eventually the doctor is swamped by the call for his panel services; his work increases as his unit pay decreases.

There is, as we have said, no logical stopping place. If the sick man must be cared for because, it is argued, he cannot be expected to provide for the misfortune of sickness during his well years, his dependents must also be cared for—hence the inevitable corollary of sick benefits. If a man must be provided for in the event of sickness, why not in the event of unemployment, yet who of us has not had repeated occasion to note the rapid deterioration of morale under this system? Quite evidently the reasons for, the conditions of unemployment would have to be constantly investigated; the question of actual sickness and disability be frequently checked by lay and professional investigators. Even the least imaginative of us can see the rapidly increasing army of bureaucrats who



would find employment under such a system, the overwhelming burden of its cost, its inevitable denouement into chaos. Socialized medicine may sound promising, but where, short of chaos, shall we find a stopping place once we have set the machinery of socialization in motion?

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### STANDARDIZATION OF THE ACTIVITIES OF THE COMMITTEE ON MEDICAL ECONOMICS OF THE MIDWEST AND NORTH-WEST

F. L. LOVELAND, M.D.

TOPEKA, KANSAS

Economic problems remain to torment us long after depressions wear themselves out. The past few years have been rather hopeless ones for many people. Poverty has been stalking the land and debt has assumed mountainous proportions. Despite the fact that tax burdens have reached unbearable limits, thousands of politicians disguised as economists, are trying to devise new schemes of taxation.

The Government is engaged in a gigantic social experiment wherein it assumes responsibility for millions of subsidized individuals. States, municipalities and all sub-divisions thereof have been eager recipients of governmental generosity; in fact, the paternal influence of our Government has been felt by individuals in all walks of life during the past three years. Undoubtedly, the world's most expensive indulgence. It will be paid for by people who can least afford the experience.

A radical change has been noted in the social policy of insecure individuals. A desire to obtain something for nothing has been uppermost in the minds of many people. A willingness to barter personal liberty and freedom for a mess of pottage, once regarded as substantial evidence of moral decay, is pardonable today, if done in the name of an emergency measure.

The hope of our country lies in the ability of these individuals to rehabilitate themselves and not allow their temporary freedom from social responsibility to terminate in a permanent divorcement from all sense of personal obligation. The alien population of our country on relief, who refuse to take out citizenship papers, will continue to accept gratuities so long as they are proffered, but such action is not to be expected

from our own people who have known better days and for whom better times are in store. We are persuaded that economic problems of medical interest will continue to be closely interwoven with the destinies of these people and their many heirs for years to come.

If such observations are substantially correct, there can be no greater indication for an immediate standardization of medico-economic activities.

It would seem that a declaration of intentions on the part of the several states is in order. In Kansas, our primary interest lies in familiarizing ourselves with our problems. At a time when governmental, industrial, agricultural and business policies are subject to change without notice, we believe an intensive study of our problems rather than a hasty solution of them is desirable. We realize that the diversified social structure of our state is such as to demand a knowledge of problems peculiar to sectional areas of the state. To know the conditions and circumstances under which we serve is to be the ambitious undertaking of The Kansas Medical Society during the coming year.

Breaking new ground in a neglected field of medicine is fraught with many dangers. Conservative action which stimulates normal development rather than radical action which provokes disaster is the procedure of choice.

Ethical and economic vantage-points have been established for us by the vanguard of American Medicine as represented by the Officers, Directors and Bureau Leaders of the American Medical Association. If, under the guidance of the Bureau of Medical Economics of the American Medical Association, we can undertake the task of studying new problems, making new surveys, standardizing our activities and formulating new plans for the future, in orderly fashion, we can move forward on the road to meet the challenge of today in medical economics.

It is impossible to measure the scope of medico-economic problems. They have benign and malignant potentialities. A benign appearing problem today may take on malignant characteristics tomorrow. The malignant provisions of the Social Security Act merit a common understanding of their possible effects in each state. Aid to dependent children, crippled chil-

dren, the blind, maternal and child welfare, vocational rehabilitation and public health provisions are of medical interest and so long as the Act is effective the men of medicine rather than lay groups should supervise its operation.

In Kansas, the administrative officers of the Act have expressed their desire to work with the consent and co-operation of county medical societies. The actual work will be performed by the members of county medical societies and paid for from funds available under the provisions of the Act. This procedure does not harmonize with our ideas relating to the further socialization of medicine. However, we must lay hold of one horn of the dilemma; either do the work ourselves within our own communities, or submit to governmental agencies, both lay and professional, doing it for us.

Indigent sick problems are legion. Insofar as we are able to determine there are as many indigent sick plans in operation as there are indigent sick individuals needing medical attention. Undoubtedly, most of us are traveling blind roads in dealing with this major problem. Indigent individuals when sick have an inherent right to seek the services of the physician of their choice. In most communities, in times of depression, such action creates an unbearable medico-economic burden. The laws of the several states delegate the care of the indigent sick to the counties within the state. Few, if any counties are adequately equipped to care for the indigent sick at any time. These people gravitate to the physician of their choice despite the fact that the law provides for a health officer to care for them.

In Kansas, necessity has driven us into the adoption of an indigent plan which we realize is not ideal. Public funds which have been spent so lavishly for all things both great and small have not been available in Kansas for indigent sick care. With one-fourth of our population on relief the enormity of the burden is apparent. Our county medical societies by agreement with boards of county commissioners were designated as an official agency within the county to adequately provide for the indigent sick. The patient-physician relationship and the principle of free choice of physician have been preserved. The boards of county commissioners compensate county medical so-

cieties on the basis of one dollar per month per direct relief family.

The burden of caring for work-relief groups has been somewhat relieved by the adoption of a similar plan for all subsidized individuals. In this agreement, however, boards of county commissioners are not involved, the agreement being between the individual worker and the members of a county medical society who chose to participate in the plan. Compensation is afforded on the basis of one dollar per month per work-relief family. We believe the advantage of the plan substantially out-weigh the disadvantages; however, we are in search of a better way and we court your counsel and advice.

Non-medical agencies, with or without governmental encouragement, have been advocating radical changes in the organization of medical service in this country. Radicalism plays no part in the normal development of affairs or institutions yet they would have us believe that the salvation of our country depends upon the socialization of medicine. To what extent public opinion has been influenced by the wide-spread dissemination of socialistic propaganda relating to the inadequacies of the practice of medicine as it now exists, we do not know. Other non-medical agencies are springing into existence for the purpose of commercializing medical services. To what extent the public is being duped by these highly advertised health schemes, we do not know. We believe, however, that if every state medical society possessed reliable information relative to the conditions and circumstances under which its members serve, the truth of the matter would be apparent and the contentions of our critics would be refuted.

The query arises as to what activities will lend themselves to standardization. There seems to be a growing temptation in the busy hurly-burly to regain economic security to subjugate the patient-physician relationship in favor of radical changes, some of which, if carried to a logical conclusion will transform the practice of medicine into a mechanical service operation on a commercial basis. If the development of a bureaucracy within our ranks is to be a controversial issue it would seem a wise course of procedure to direct all of our activities toward the standardization of the patient-physician relationship. Our problems are clearly set forth by



the uncertainties of life involving the patient and his physician. These two parties should occupy the foreground in medico-economic activities. There was a time when physicians paused sufficiently long to evaluate the feelings of men and women; when their philosophy of life was a factor in the diagnosis of their economic ills; when their varied abilities to grasp opportunities and face uncertainties of life was of great prognostic value in the determination of future conduct. These human equations are of significance today. Traits of human character which can make or break any economic problem must be properly evaluated by the men of medicine and moulded into useful instruments of service.

It may be said that investigative bureaus designed to carry on an exhaustive survey of sick men, women and children will in no-wise interfere with the patient-physician relationship but we submit this issue to be a matter of opinion. What is to be the prevailing opinion of the men of medicine regarding this vitally important problem? Is it possible for the men of medicine to so standardize themselves and their economic activities as to enable them to deal with every phase of the patient-physician relationship without the intervention of lay third parties? Our sins of procrastination are responsible for many of our problems. If we could feel that a bureau, any kind of a bureau, could wash such sins away we would immediately favor the development of a bureaucracy even in Kansas.

In Kansas, there is a re-kindling of the fires on all the hills. Our county medical societies and the individual members thereof have awakened to the necessity of economic advancement; they are assuming a new medical leadership within their communities.

Our State Committee on Medical Economics has been enlarged to meet the demands of a state-wide survey. Eleven members selected from all sectional areas of the state are serving on this committee. Each member of this committee will assume the chairmanship of a sub-committee composed of five members selected from county medical societies residing within the district of the chairman. In this manner, each of our county medical societies will be directly represented in the furtherance of our medico-economic program. Each of the sub-committees will be assigned studies of major and

minor economic importance and it will be their duty to specialize, so to speak, in the subject matter of their assignments. As soon as they are reasonably assured of the reliability of their findings they will report same to the State Committee for approval before the final submission to the Council and House of Delegates. Likewise, in this manner, many problems of economic interest can be studied simultaneously. Each of the sub-committees will be assigned the further duty of supervising the survey in their sectional area of the state. The entire membership of county medical societies will co-operate in this work. A questionnaire booklet is to be designed by the State Committee setting forth the information desired. These booklets will be presented to every member of The Kansas Medical Society for completion. County medical societies will be held responsible for the completion of such reports in every instance wherein individual members are incapacitated or otherwise unable to do the work. Within the course of a year's time we hope to have a working knowledge of our problems.

As elsewhere, the low wage and low salaried groups are knocking at our doors demanding solutions for their medical problems. We hope our survey will reveal the exact status of these people so that adequate provision may be made for them without working undue hardships upon them.

We expect to make mistakes. They will be sins of commission rather than omission, we hope.

#### DISCUSSION

Mr. T. V. McDavitt of the Legal Department of the American Medical Association read a paper entitled "The Social Security Act and Its Relation to the Medical Profession."

Dr. A. D. McCannel, President of the North Dakota State Medical Society, Minot, North Dakota: In discussing this excellent paper I find myself in a rather peculiar position for the reason that I have to take a definite stand on this subject. I must either favor the Social Security Act or be against it. However, I believe there is a middle ground which we as medical men should adopt. I think we all acknowledge the fact that the terms of the Social Security Act are not ideal from a medical man's standpoint. We are attempting to reach the ideal but many times we have to deviate from it somewhat.

I am not in favor of the Social Security Act, especially as it has been presented to us, for the simple

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reason that the medical men have not been taken into consideration in the preparation of this Act and the carrying out of this Act has not been defined. On the other hand, the ideal would be to acknowledge the terms of the Act, but we find ourselves in many sections of the country where we cannot assume the attitude of not needing federal medical help. In our state, due to the general depression and due to crop failures, rust, drouth, etc., we find ourselves in a position where, in order to maintain an honest, industrious, hardworking citizenry, we had to seek outside help so that we could give the necessary medical care.

I am more familiar with some parts of this Act than with others, since I am on the North Dakota State Welfare Board. I have in mind the Social Security Act coming into force and trying to meet the requirements of this Act in all its parts. The first three sections of that Act come under our supervision as a Welfare Board: Old age assistance, taking care of dependent children and taking care of the blind. I think the conditions laid down by the Social Security Act are the same as have been laid down for other acts. As you know, the Social Security Board in Washington will not deal with anyone in the state except a definite or a state agency that can speak for every political union in that state. It was surprising to all of us to find the difficulties that we met with in making our laws in the different states try to conform to the requirements of the Social Security Act. Our legal minds have been working on it for over six months and it was thought that everything was finally all right and we could get the funds needed but it has not turned out that way.

There are many pitfalls in the whole thing, and one of them is that the state is required to match dollar for dollar in most of these cases. In the case of the Child Health Bureau, there is a 33% basis and this is an obstacle over which many states cannot get. For instance, in the Old Age Assistance Plan, the state will provide from \$7.50 to \$15.00 a month for each aged person in the state or political union; then the federal government will match this sum up to \$30.00, but we find in our state many counties cannot make their portion of the payment.

When it comes to Public Health, the final word is taken away from the state authorities. It rests with the Surgeon General just as the final word in Child Welfare rests with the Department of Labor.

I feel that we might as well realize that this thing is with us. There is no question in the world but that some form of Social Security is coming. I believe that in the past three years our attitude, on the whole, has been to participate in this subject and see to it that medical men are considered in councils of the state. That is the only reason why I accepted a position on the Board, just to protect the medical interests in the state. I think the attitude of the medical man has been the same in all states. We have acknowledged the economic side of the practice of medicine, but we must take as active an interest in this Act as the business person does. We must realize that every provision of the Act will depend upon the

cooperation of the medical profession to carry it to success. We must cooperate with the state agencies to carry out the provisions of the Act so that we can influence the program and guide it over the pitfalls from the medical standpoint.

There is another subject that comes to my mind right now and that concerns mass immunization. Many states have accepted this policy on a modified basis. But now we are told that we can go into a county to immunize patients and material will be furnished to doctors who indicate that they will participate in this policy. In other words, the medical man would not be obliged to do mass immunization without getting some aid with the materials used.

Dr. Charles B. Reed, President of the Illinois State Medical Society, Chicago, Illinois: Mr. McDavitt has abstracted the provisions of the Security Act very clearly but nothing has been said regarding the effects of this bill on the citizens. I would like to call attention, first, to the legal aspect.

The Supreme Court, in its triple A decision, has clarified the atmosphere and may become an effective barrier against this and other attacks on the constitutional rights of the States and the citizens.

Congress purposes, however, to "enable" the several states to carry out the theories and provisions of the Act by compelling them to pay taxes for which no return will be given *unless* the State passes laws approved by the Social Security Board appointed by the President. Frankly, of course, this is a mere pretext to give federal control over a subject which has not been delegated to it by the Constitution. The tax is a political bribe to an unconstitutional end.

Regarding the Wagner Act, which is cognate in origin and intent, Judge Otis of Arkansas said, "Art. I, Sec. 8, Clause 31 of the Constitution reads, 'Congress shall have power to regulate commerce among the several states and nothing else can be regulated by virtue of this power.' This power cannot be increased without amendment to the Constitution and when such an amendment is enacted then whatever remains of the sovereignty of the States will cease to be."

Now the practice of medicine is obviously a local business under State supervision, responsible to Congress only in its interstate relations and should be allowed to fulfill its manifest destiny without governmental interference.

In this connection John Stuart Mill affirms "that even if government could embrace in its system all the most eminent intelligent talent and capacity, it would still be not less desirable that the conduct of most affairs should be left to the persons directly interested therein."

The question of expense to the citizens must some time be thought of. According to the estimates of the Committee on Medical Care, the average expenditure for illness is about \$30.00 per person, which means that the taxes of the nation required to maintain and support socialized medicine would be more than the cost of the army and navy or nearly two-thirds the costs of all other legitimate government necessities.

The cost of medical care is in no way diminished



by socialization but on the contrary greatly increased; in fact doubled since the swarm of administrators and parasites of government must be paid as well as the actual cost of care. To this burden also should be added the not insignificant item of operating the medical schools which the government would be obliged to take over.

This extravagant disbursement, moreover, is not wholly avoided by the patients but merely spread about from the invalids who should pay for the personal service to the neighbors who are well so that each would pay as much as the one victim pays now. On the whole it has been estimated that in twenty years approximately \$50,000,000,000 would have to be held in reserve for protection against illness alone. Yet such a scheme is seriously proposed by infatuated dreamers without adequate consideration for the ultimate results.

Someone has just discovered that the Old Age Pension will cost this much also and so with the Unemployment Insurance added, a debt of \$150,000,000,000 will be saddled on posterity with the usual interest.

Now, \$42,000,000,000 is all the gold there is in the world and only half of it is monetary and only a quarter belongs to America and even if such a sum as \$11,000,000,000 could be accumulated, how long could such a treasure be maintained and not Sweitzered by needy socialists, political profligates or a shamefully subservient Congress which has neither viscera, vertebra nor cerebral vitality? Such a fund would be a constant temptation to constitutional breaches which would expose us to progressive desolation. Indeed, the ruin would be well under way as soon as this huge political Social Security monstrosity was on the march with its millions of employes, dependents and unlimited influence in lobbying for money, expansion and votes. Let us accept the fact once for all that no system of Social Security nor sickness insurance provided by a democracy can develop into anything but a plaything of politics, no matter how ideally it may be designed. Nor can such measures have universal application in so large and so diversified a country as America. The states of this union cannot under the law nor with a remnant of self respect, pass any legislation which accepts the humiliating conditions imposed by the Social Security Act.

Another important feature of this measure is its inevitable bureaucratic destiny. Paternalism is a tutelary device intended ostensibly to secure welfare but if once recognized as a cure for political evils it will only be by chance that it does not end in despotism or a reign of terror.

Since the Magna Charta was wrung from the unwilling hands of King John, the Anglo-Saxon world has been taught to expect that laws and indulgences would be written with certain circumscribing regulations which all could understand and observe but this Act is put forth in words so vague and limits so indefinite as to supply no legal restrictions but rather a fulsome grant of power to bureaucracy for the "abundant life."

Bureaucracy is the favorite child of paternalism and

apparently also of some of the foundations and its first requirement is to regiment all our citizenry into definite herds which can be more easily manipulated by the mediocre mentality of political appointees who, like the janitors of schools, will receive larger salaries than the trained intelligences in the educational department.

The bureaucrats, however, may meet with problems not readily solved and even with hostility. Will they, for instance, compel the Christian Scientists to accept medical care in the form of Social Security or Health Insurance, or the Spiritualists, the Mennonites and the numerous secular groups who are inherently and unswervingly antagonistic to physicians? Shall these free citizens be placed under a compulsory regime like the unlamented prohibition law and be taxed to support the most injurious form of governmental paternalism?

Bureaucratic administration in medical practice means the compulsory shift of duties essentially particular and individual to a subsidized political control by laymen which is the worst possible form of unqualified management and leads infallibly to financial extravagance, nepotism, graft and a chaos of inefficiency.

The visionary character of the project—the inevitable bureaucratic domination and the dubious proclivities of its proponents arouse the uneasy suspicion that the whole sinister "Security" campaign has been devised and urged less for the sake of humanity than for bureaucratic votes and loot arbitrarily allotted by the head bureaucrat. Bureaucracy creeps over the country like some foul skin disease, a leprosy which slowly eats away the nation's life.

If the inquiring eye is swept about over Europe and America and the political eruptions carefully considered which have occurred in these countries, one will be impressed by the similarity in origin and the typical effect of all the urgent campaigns for reform which are merely bureaucratic traps baited with the slogans and catchwords of benevolence. The reformer who cries aloud in the wilderness for freedom, for security and for the abundant life proposes some new system. Something more irksome, more exacting and something more unreal to the soul. Noise and unrest are stirred up, agitation rises amid blinding clouds of discussion and possible warfare. The world is upset by the clamor and chaos and when the peace of fatigue is restored and quiet again reigns, the prime movers of disorder are discovered sitting in the seats of the mighty and passionately ordaining their particular brand of New Life by absolutism and the point of the bayonet.

Social insurance for sickness and unemployment are twin mongrels born to ignorance out of folly. They develop as monstrosities in graft, greed and bureaucracy and slowly strangle the morale of the citizens and the efficiency of the State.

"If we are to live under the Constitution," says Judge Black, "the Social Security Act must be repealed and its principles abandoned as Federal measures."

Dr. E. A. Meyerding, Secretary of the Minnesota State Medical Society, St. Paul, Minnesota: Mr. McDavitt gave us about the most concise analysis of the Security Bill I have ever heard. Dr. McCannel

told us something that they are trying to do and Dr. Reed gave us hope that things will be repaired.

The biggest thing I get from these conferences is suggestions from other states of what they are trying to do. I will pass on to you two things which have come to our attention and will tell you we hope they will work out. First, the crippled children part of the law: It seems we have been spending about \$200,000 in taking care of these children and it also seems that we should now get an additional \$200,000. We have a hospital for crippled children conducted by a Board of Control. This Board called in a doctor and he suggested that we have more children who need care than are at the present time being taken care of. The plan is that these cases be referred to various hospitals; not state hospitals, but private hospitals, and that they be given medical and hospital care there and the additional funds will be spent for those doctors and hospital bills.

In our State the Board of Health has appointed Advisory Committees. I do not know how successfully this will work out because so often men are put on these committees and that is the end of it. These Committees are supposed to study some of these new problems coming up and if they will really do this the plan will work out fine in Minnesota. It seems to me that it is the Health Department part of this Social Security Act which can do a lot of harm. We all know that every time a full time man is put on in health work it is permanent, and when you hire one man in such a position, you have to hire four or five more to do the work. I would like to hear other plans from other states.

Dr. Edward A. Ochsner, Chicago, Illinois: Personally I am basically and fundamentally opposed to all forms of Social Security. I am opposed to everything that Dr. McCannel said. Dr. Reed has covered the points of bureaucracy very admirably, but there is a dependent portion to that which is even more vital than bureaucracy, and that is the fact that it unquestionably undermines the integrity of the citizens of the country where Social Security is enforced. The thing has developed in Germany so that there is no such thing as general integrity of the people. If it were not for certain Social Security Acts in Germany, such a performance as we are seeing in Germany today would be impossible. They have lost their fundamental integrity. That is a strong statement to make.

One author says that a man came to him for examination. The doctor looked the patient over and found him sound and he said to him, "What are you here for? I cannot find anything wrong with you." And the patient answered, "In my village I am the only man who does not get some form of government stipend and they are all making fun of me." If anyone thirty years ago had said such a thing, the rest of us would have said, "He's got bugs." If a man had said such a thing two or three times, he would have been taken to a psychopathic hospital.

This thing is undermining the integrity of the citizens and when that time comes the first thing you get is revolution, bankruptcy and then revolution again, fol-

lowed by a dictatorship. Germany is not at the bottom of the well, but must go until she gets a real revolution, and then they will come back and have real German citizens again with independence and integrity.

Gentlemen, the Social Insurance Acts are undermining the integrity of the American citizens. Would you have believed in this country that, twenty years ago, the United States Congress would have dared to intimidate the States? That is exactly what the Act is trying to do. Would you have believed that a President and a Congress would deliberately, after they had sworn to take the oath of office, pass laws they knew were unconstitutional? We are already the most lawless country in the world, and when our Chief Executive and Congress are disobeying, how can we hope to become a better class of citizens? Almost all of these laws are based on theory. They are not willing to recognize the experience of foreign countries. It is a very great question in my mind, gentlemen, whether the impractical theorist Wilson or the none-too-scrupulous Lloyd George or the blood-and-thunder Clemenceau are to blame. Which is the most to blame for the muddle Europe is in today? I believe that if we had had a great statesman instead of a theorist, Germany, Europe and the whole world would not be in the muddle we are in today.

Dr. Benjamin F. Bailey, Lincoln, Nebraska: I cannot avoid saying something about this matter. I have heard that the government was to direct and not to dictate. So far as I can see there is no difference. They are dictating how the states will do or they will not play ball. It certainly is undermining the integrity of our people. I employ between eighty and ninety people all the time. I have offered a good many people positions and they would not take them because they get taken off relief if they did accept. I also know that people apply every day for relief whose families are capable of taking care of them.

Do you realize that no one knows what a state can do or what its real needs are so well as the people of that state? Do you realize that they have been giving us money and relief like a drunken sailor spends, and then in one day they can cut it all off? What does it mean? It means that the people are discontented but the money has to be raised instantly. New York has an immense number of people who need help. We do not have as many. We are able to take care of them at this time. Do you realize that for all the money we get, we have not begun to pay for it yet? We will know more where that money comes from when we pay our taxes next year. It will cost a great deal in extra taxes.

The trouble is we do not always stop to think through and still I have a tremendous amount of faith in the ultimate judgment of the American people.

I want to call attention to the cost of administration of relief in our country. They tried to perpetrate a relief bill in our state that would have cost \$350,000 before any relief would be done at all; the cost of administration is tremendous. We do not want to raise money for that administrative cost but for relief.

I want to say a thing which I think is true. If we



could have an honest census of the unemployed who have received employment we would find very few who received employment. Some have received it directly under the government, which means that all these expenses which are growing so fast are going to mean a political football and the \$4,800,000,000 has not been spent; it will be spent next fall.

Dr. F. L. Loveland, Chairman, Committee on Medical Economics, Kansas State Medical Society, Topeka, Kansas: With reference to the provisions of this act and their relationship to Kansas I might say this. The members of the State Board of Health are first, last and all the time members of the County Medical Societies. They are working at this time pretty largely from that angle. For that reason the two phases of the Act—the Maternal and Child Welfare Provisions and the Public Health Provisions—if and when the Act becomes operative in the State, it will be under the direct observation of the County Medical Societies. That is the way it will work in the State of Nebraska. The State Board of Health will not start a program in a given county unless it meets with the approval of the County Medical Society as well as the health officers in that community. We feel that if the Act becomes operative it is infinitely better for physicians themselves to dominate this program, and we do not know as yet whether or not it will be operative. If it is and so long as it is, we want to see the physicians themselves dominate the program.

Mr. T. V. McDavitt (in closing): I think it was generally recognized when the Social Security Act was passed that the Federal Government was favoring a condition which we realize will not be improved in the next twenty years and that unemployment would be stabilized around 10,000,000 people. They were trying to devise some scheme to get a portion of this off their hands. It has been characteristic in this administration in meeting certain conditions that it was hoped that during the furor that was created certain theoretical plans would be successful. The administration was faced with 10,000,000 people to take care of and in this Act you will find certain types of grants, such as grants for dependent children and for old age pensions, that were more or less temporary measures. The thought was that these people around sixty years of age would have to be taken care of. It was impossible for them to work out any schedule or a scheme whereby these people could help in their own care. The administration thought that if the plan was worked out over a fifteen-year period that they could pay part of the support of these people. They thought also that those who were working could contribute and the burden of the government would be less. If you view the Act from those angles, the provisions that relate to grants will not be declared unconstitutional. There is no way an individual taxpayer can challenge the law. Those provisions that undertake to impose taxes I think will be forced out. I am referring to a federal tax on a payroll for old age pensions and social security. It will be some years before the Supreme Court will be able to pass on these things but they will come up in time.

Dr. Harold M. Camp, Secretary of the Illinois State

Medical Society, Monmouth, Illinois, read a paper entitled "Reciprocal Relations Between State Medical Societies."

Dr. F. S. Crockett, LaFayette, Indiana: Dr. Camp has given us numerous fruitful suggestions and made observations which make the task of discussion a pleasant duty. I think his plan for interstate exchange of ideas gives promise of many mutual benefits. He has called attention to a possible activity of state societies that may be compared to that we see now among the political governments of many states. Those responsible for government in these states are beginning to realize that some local problems exist which the Federal government cannot handle and, yet, problems which transcend the boundaries of the state itself. Consequently, we see now the conferring of Governors and other state officials in an effort to solve sectional problems, problems not of a character permitting Federal interference, yet of prime importance to several states. I am quite sure the essayist has touched upon a very useful and practical idea and one that should be in complete harmony with a conference such as this, the origin of which was a recognition of interests of a sectional nature. The exchange of ideas between the state societies should be direct, and should be the method of choice, when dealing with many of the problems arising from the depression, among which may be mentioned the social security administrations now being set up in all the states.

The setting up of an Interstate Liaison Committee should provide the channel through which common action might flow. The members of such a committee should be conversant with the background of their respective state society activities and they should be continued in place for long periods, to the end that continuity of policy would be assured.

The essayist emphasizes the need for a more widespread interest among members of organized medicine, if we are to achieve the best that is in us. I believe this is very correct. If we could have members largely of the type of Dr. Camp or Dr. Hamilton, just to mention two, by way of illustration, we would have all the elements necessary for going places and doing things! I agree with him that our most difficult problem is to stimulate the interest of the average member. I mean, stimulate his interest in the multitude of problems not directly related to the treatment of disease. The officers, councilors and delegates will, in the order named, master the intricacies of state society activities and do a good job fulfilling their responsibilities, but other members seem to take little or no interest.

When Dr. Camp enlarges on this idea and arrives at a place where he believes "a greater effort should be made on the part of our parent organization to standardize state and county medical society activities," I am sure some comment, calling your attention to some possible effects of such a policy, is justified. I have heard this same kind of sentiment repeated many times in my own state, but following such principle to a logical conclusion would inevitably lead to deterioration and loss of initiative in state and county societies through disuse. No effort should be made by the

American Medical Association to standardize because this must imply coercion; the imposing of a system. I am sure Dr. Camp did not have this in mind at all. I feel that he means there should be leadership available for every legitimate action contemplated by a county or state society, as a result of the studies and research made by the various Bureaus of the American Medical Association. Such leadership, if used, would direct resulting action toward a common goal in furtherance of our interests, reflected nationally as well as experienced locally. In other words, we, in the state and county, do not avail ourselves of the tremendous amount of information and experience to be had for the asking at headquarters.

The state and county societies must stand on their own, learn to solve their own problems and work out their own salvation. I do not agree, however, that there is a certain limited field where the American Medical Association should be allowed to assume leadership. There have been in the past some state societies that did not welcome from the American Medical Association headquarters anything not specifically invited. After such an experience, it is not to be expected but that the boys up at headquarters would exercise due caution in sticking their necks out in other directions. However, headquarters is a natural clearing house for news and the logical center for directing activities of a national character. In all such matters no state or county society is competent to act and should expect and accept and demand leadership from the American Medical Association. In this way, I am sure, we could have unity of purpose; that oneness of objective so necessary if we are to act as a profession and speak with one voice. In every other matter the local organization should be master in its own house.

Dr. Camp pays a much deserved compliment to the extremely valuable work of Dr. Leland in developing the study of the principles underlying the economy of personal service. A peculiar attribute of personal service is its intangible character. In manufacturing it is possible to arrive at an accurate cost involved, so that in the sale of the article the element of loss or profit is readily ascertained. In personal service, especially in one so involved or complex as medical care, the cost is not so easily determined. If we really knew what it cost to render a particular treatment, then we would know just what to charge our patient and, when it came to fixing compensation for indigent medical care, we would be able to assess cost, plus a reasonable profit. At present the situation seems to be one in which the laymen believe that whatever the doctor collects is all profit. This feeling seems at the bottom of the resentment sometimes voiced by people at what they consider exorbitant doctor fees. This lack of accurate cost accounting has made possible the stiffening of the opposition to fair and reasonable compensation in medical indigent relief. It has also been one of the weak points in preparing argument for the negative side of the current high school and secondary college debate this winter.

I am not inclined to go along with the essayist in his statement of the probable intent and ulterior motive of

those who selected this subject of State Medicine for debate. The purpose of the Debaters' League is to find subjects of great public interest. Last year the question was one of Federal Control of Education. After surveying the whole field of current public interest, subjects embodying them are submitted to all debate coaches, who are asked to express a preference. The subject receiving the most support is then officially accepted for the ensuing year. If some ulterior motive existed, it seems to me the question would have been worded much differently. As it is, the affirmative must champion complete State Medicine. Argument in support of complete State Medicine and the evidence in rebuttal affords an excellent opportunity to show the values of the present system and its superiority over the proposed change. While it is true that one-half the debaters are studying the arguments for State Medicine and, to some extent, may later be influenced in their opinions by such studies, the other half are as ardently studying and proclaiming to the world the triumphs and virtues and values of the present system. At no point is there any question raised as to the values of medical science and practice, but there is always the insistence, even by the affirmative, that these values are so wonderful that no one should be denied the full use of them. What better indication could we have of the good opinion of our neighbors? What better instrument for the welding of favorable public opinion than these thousands of bright, enthusiastic youngsters, differing only in their arguments as to methods of distributing the cost of those inestimable values of a universally acknowledged and conceded benefit.

If, after centuries of service to humanity, medicine is now so weakly entrenched in public esteem that wide-open, free discussion in high schools and colleges could alter that esteem, then perhaps a change to some more secure system would be warranted.

I am of the opinion that we will find that this critical examination of the present system of practice will reveal to the public many of its hidden values as well as reaffirm them in their confidence and good will toward us as a profession.

Dr. R. G. Leland, Director of the Bureau of Medical Economics of the American Medical Association, Chicago: Naturally the subject of medical economics is of great interest to me. Dr. Camp has called your attention to the fact that the American Medical Association is a federacy and under a federacy it is a perfectly wholesome condition to find a difference of opinion. We find that in the American Medical Association as well as in the political situation throughout the country. I believe, however, there is a greater unanimity of opinion in medicine than in some of the other social fields in the country today.

There are two essential phases of medical economics which I believe we must keep in mind. First, the research phase and, second, the practical application. The American Medical Association is so organized that it has provided for the physician throughout the country an organization centrally located to function as a research organization.

From some of the remarks heard this morning I be-



lieve you do not take kindly to the kind of administration and domination which are found in the autocracies and dictatorships that are operating in some countries. It has been our experience that in many places medical societies do not wish for the domination that would come from a centrally controlled program of medical practice directed from Chicago.

It seems to me, then, that the primary function of the Bureau of Medical Economics is to provide facts and arguments used in localities by medical societies in making practical application of the principles of medical economics. In that application it is considered as necessary for the physician to become educated as for us to provide information in regard to the kind of medical practice and the way in which we are attempting to safeguard the quality of medical attention given to the public. There are many opportunities presented almost daily for us in the Bureau of Medical Economics to write essays and prepare papers for physicians and laymen and students, and obviously we have not the time to devote to that kind of work. We could be busy all the time writing a paper for somebody to present.

There is still a demand, I am sorry to say, on the part of certain people for a general plan for the entire country as witnessed recently by an editorial in a state Medical Journal. I cannot quite conceive of the frame of mind of the person who feels that a general plan can be applied successfully throughout the entire United States. It seems to me that arguments of sufficient weight have been presented that no general plan can work throughout this country. There is such a diversity of population, industry and wealth and many other factors that the plan which works successfully in one place does not necessarily hold an equal degree of success in other sections and, therefore, the practical application of these plans must be applied according to the local requirements and conditions in each separate community.

We of the Bureau of Medical Economics consider our primary function as that of research; to find the facts and present and prepare arguments that are to be used by county medical societies in presenting this subject of medical economics to their communities and profession. The principle objective would be to preserve the conditions which the medical profession believes are necessary to good medical care. Unfortunately the primary objective of medical economics has been turned about and one of the minor factors has been emphasized as primary now—the collection of medical fees and the increase in size of a medical practice. We are interested in preserving medical practice as an institution devoid of the domination and control of dangerous conditions that surround medical practice in other countries. Today we have new social conditions. One is the new legislation passed by Congress. We find ourselves confronted with new conditions; already the Social Security Act is a fact. I am as much opposed as anyone to the idea of subsidy which carries with it the compulsion and the domination of the political control. Inasmuch as we already have a law on the books to which we as Americans should lend our support, it seems to me that the least we can do, while it is oper-

ating, is to do what we think is best to make it operate with as little interference as possible. If we do not believe in that law, there are ways and means of taking it from the books.

There is just one other matter about which I have some rather strong feelings. I hope that in the years to come we shall not make medical economics a fetish. I hope that we as physicians will not overemphasize the subject of the economics of medical practice. I hope we will make it a means of preserving the proper conditions under which medicine is practiced and that we will not permit ourselves to place medical economics in the primary consideration of medical practice. As we have always considered the primary object that of practicing good medicine, medical economics should be a secondary consideration. The science and art should be primary at all times. We should use the economic consideration and principles merely as a means to preserve those conditions which are most wholesome for good medical practice, and we should not permit the public to gather the impression that physicians have turned commercial and are giving more attention to bigger and better practices which mean more and more money. I hope that in the years to come we shall not permit medical economics to take the primary position in the practice of medicine.

Mr. George Crownheart, Secretary, Wisconsin State Medical Society, Madison, Wisconsin: There are some things which Dr. Camp has said so well upon which I think some emphasis should be placed. He has discussed the procedure in which state societies should act so that there would be no conflicting information that goes out to the public. I think that is very important, even in such a little thing as the debate material. It has been our procedure in answer to letters asking for material, to send the desired material and the letter to the secretary of the state or county society from which that request came and then it is up to that person to forward the material, if he thinks that is the wise procedure.

I also think the matter of the annual meetings is important. We have tried to notify all the societies just the minute we have picked our date.

In the matter of answering questions from other states or even in asking questions from other states, I think we should go one step further and supply all those who offered the information a compilation of the results.

Finally, Dr. Camp said that state societies should advise their neighbors of new activities. This we have been trying to do but with his inspiration we will try to do a better job of it in the future.

Dr. R. L. Sensenich, South Bend, Indiana: This very important subject has been wonderfully presented and extremely well discussed. There are things of much importance which develop in one's state which are of interest to adjoining states.

The matter of preparing information in the American Medical Association which could be standardized and furnished to the state societies and through them to the county societies is, as has been pointed out, useful to a limited extent only. We have tried to hit upon

something that would apply everywhere. The matter of research which is going on is of extreme importance and I think it should be broadened. I have previously emphasized the point that I believe the American Medical Association should engage in whatever research activities are necessary to develop information which we need from the standpoint of sociology. I recognize that the work which is being carried on by the Bureau is sociologic in character, but thus far we have been dependent for many of our statistics upon material which has been prepared by other groups not always friendly to us or our viewpoint. We well know, those of us who are preparing material for debates or talks, that out of necessity we constantly use figures that have come from other sources. It is difficult to prove that these statistics are not correct or are not valuable, but nevertheless we have no figures of our own. In this respect I think the activities of the Research Department should be widened. And I believe, also, there might be some wide distribution from time to time to the county societies in such a way that every physician who is interested might have this information at hand.

There is no question at the present time, nor at any time for that matter, that the ultimate progress of legislation is dependent almost entirely upon the various pressure groups. Unfortunately in the past medicine has not constituted itself into a group to bring that pressure to bear for itself. It has not, apparently, been interested or has not felt the necessity of any action. We have depended upon the fact that no body was interested in us and when any matters came up we went to the American Medical Association and in most instances we have not suffered so badly, although sometimes it has taken a long time. Nevertheless, with social changes coming as rapidly as they are, there is no question that if we hope to maintain our position and keep the public safeguarded, we must be well organized and have each individual physician an agent of the organization and the profession which he represents. These things I think are important because they constitute effective pressure and because the legislature depends upon our opinions and wishes; First, the preparation of this material; second, its distribution to societies; third, strengthening of societies with leadership in the membership so that the members are kept working. Physicians are individualistic to an extreme degree. They are very frequently not especially keen to be active in organization affairs. As a consequence of all this, we lose an opportunity to protect ourselves and bring information before the public that would be helpful. The situations differ so in various states that it would be well to have expressions from one state to another interchanged and have this material from the states available and presented readily to the American Medical Association where it might be incorporated in their study and recommendations.

Dr. Harold M. Camp, Monmouth, Illinois (closing): I believe any subject that is of interest generally and is worthy of consideration is worthy also of discussion. There were several controversial points presented here

today and I think it would be almost a total failure if we did not have some disagreement.

I agree with Dr. Crockett almost entirely in his discussion. The question of material furnished to high schools, colleges and universities for debate has come up again and again for many years and I based my opinion on that fact.

I was very much interested in Dr. Leland's excellent discussion. I think one of the most unfortunate things in connection with the work of the American Medical Association is the fact that so many of our members are not aware of what the American Medical Association is doing and can do for its membership. Information concerning the various bureaus, medical economics, investigation, medico-legal problems, public health, medical education, the package library and many other facilities are available to the membership and this is not known to many of the members. I believe that every medical journal published by our state medical societies at least once a year does publish the functions and duties of the American Medical Association. I am of the impression that many of the members do not read these things.

I am not going to attempt to answer Dr. Leland's statement that the primary function of medical economics is to accumulate information and correlate the data obtained through their many forms of research investigation. He has put out during the past three or four years many excellent articles, pamphlets, reprints, and so forth, and I think they are all of general interest to the members of the medical profession and are available to all.

Mr. Crownhart's suggestion relative to the follow-up of questionnaires sent out I think is very excellent. Whenever we send a questionnaire we should at least correlate the data obtained and send a report back to those who made it possible.

Dr. Oliver J. Fay, President of the Northwest Regional Conference, Des Moines, Iowa, read the President's Address.

Dr. F. L. Loveland, Chairman of the Committee on Medical Economics of the Kansas State Medical Society, Topeka, Kansas, read a paper entitled "Standardization of the Activities of the Committees on Medical Economics of the Mid-West and North-West."

Dr. E. A. Meyerding, Secretary of the Minnesota State Medical Society, St. Paul, Minnesota: Dr. Loveland has given us something very worth while in presenting to us what Kansas has been trying to do and intends to do. I got a great deal of satisfaction out of it because we have tried something similar. I want to congratulate the Kansans on the fact that they have a definite plan. The difficulty has been where to go and how to start. They have started and whether the plan is 100 per cent. or not is immaterial.

There is no question but that medical economics is a part of the practice of medicine and just now, due to social unrest, it is becoming more prominent and more important than it was some time ago and I suppose the time will come when it is not so important.

I am glad that the Kansans are doing more than talking. Their plan is very similar to ours. I was



glad to hear of their action in regard to the care of the indigent. I wish we were as far along as they are. They have a state wide agreement with county commissioners and I have never heard of that before. In their state every county is willing to pay something for the care of the indigent. They have retained the principle of the patient's choice of a physician and I think they are on the right track.

I am going to outline our Minnesota plan and you will see that it is quite similar. It is a question of organization and committee work. The committees are divided into scientific and economic, the members of which are appointed by the Council. The Economics Committees are called Public Policy and Legislation Committee, Interprofessional Relationship Committee, University Relations Committee (because there are always problems popping up in connection with these institutions). Then we have a Committee on Public Education; that is our public relations committee and that we have divided much the same as the Medical Economics Committee. We started with a small committee but the thing grew and in order to coordinate our work we had to have subcommittees. There is also an Executive Committee composed of various Liaison Committees; they are men who are specialists in their field. I will not go into the details of the functioning of these committees.

Coming back to the Economics Committee, we have the Medical Economics Committee and this consists of Dr. Braasch and the chairmen of the subcommittees, and that committee is responsible for the general program, determining what type of publicity is to go out, and so forth.

Then we have an Editorial Committee which co-operates in the publishing of certain material in *Minnesota Medicine*. We have another committee on Medical Organization which is of use to the student as he gets out into practice. We have a Medico-Legal Committee and a Medical Defense Committee which study malpractice work, but we have no defense fund whereby we can engage attorneys. We had that some years ago but the plan was abandoned. We have a State Health Relations Committee which is in contact with the various State Health Agencies. We have a committee on low income problems.

In regard to the low income and indigent groups, two years ago when the FERA first started out, we organized each county, with a committee of three for each county. These committees are still functioning and are responsible to the Council and they are handling the individual problems as they arise in their own counties.

What is so gratifying is that we are really getting some place. Of course, we all know that every community has problems that are somewhat different from any other. It is important that the Bureau of Medical Economics of the American Medical Association stand ready to advise all states on their local problems. Every state society should be in a position to guide or help the county societies. It is the duty of the county societies to see that the state society is functioning progressively. Finally, all important policies adopted

by societies should be reported to the Bureau of Medical Economics of the American Medical Association to insure harmony with the national progress.

Dr. R. H. Pino, Chairman of the Economics Committee of the Michigan State Medical Society, Detroit, Michigan:

Dr. Loveland has discussed the present problem of economics, as related to medicine, in an interesting manner. He reviews in concise statements the dangers in the road to medical social security. These principles need continued reiteration. If one is told often enough, that he looks sick, he is likely to find himself sick. If every member of the medical profession is told often enough of the dangers that lie at the health door of the nation he will increasingly bestir himself. Many more are now bestirring themselves than formerly. They are finding the problem broadening, perplexing, challenging, interesting. The medical profession needs never to fear challenge, we need not fear a new social order, we need very much to fear lethargy on our own part. Let us put aside doubt, fear and lack of faith, if we lack faith. On the whole, there is no group of men in the world that the people cling to with greater hope and confidence than the medical profession, conversation to the contrary, notwithstanding. When the family bank failed, when all the banks failed, there occurred a national monetary calamity, but on the same day that the banks failed, the expectant mother in labor or the father ill with pneumonia found the doctor at the bedside. There is no such thing as medical bankruptcy. This fact shall never be erased from social consciousness. Cohesion of every unit in medicine was never so important as now. Dr. Loveland is wholly correct in stating that we need to cling to the A. M. A., to its officers and council and co-operate in their objectives. His suggestion to carry the activities of the State Society on down through regional committees, is a good one. In Michigan we consider our County Society Economics Committees as sub committees in principle, of the State Economics Committee. We have, however, four active sub-committees of the Economics Committee, which compare to Dr. Loveland's regional committees, set up for study of various problems. These include, this year, a committee on relief medicine, one on pre-payment hospitalization, another on industrial medicine and still another, on post-graduate medicine. The chairmen of these committees are all members of the main Economics Committee and they choose their own other members.

In co-operation with the Probate Courts in Michigan, the State Society has set up a filter system in 79 of our 84 counties. These filter committees are made up of doctors appointed by the county societies to co-operate with probate judges in determining the eligibility of patients to receive care under the Affiliated Child and Crippled Child Acts. Ultimately, I believe that such filter committees will do away with the political spoils, made possible by older methods.

In Wayne County we have experimented with a post-payment system for those of low income. We have had many difficulties. We have made a good record. We seem to be winning. Instalment buying on a post-

payment basis in medicine is not only feasible, it is indispensable for the majority of people.

The medical profession has been challenged by the committee on the cost of medical care, by foundations and by communistic propaganda, but, as I have previously stated, we need not fear fair challengee. We do need to fear challenge that is heavily subsidized propaganda. Our problems are possibly no greater than the problems facing men in most walks of life in these times. We need, if possible, to substitute something that experience makes us believe to be better and then stick to it.

My answer to the inquiries of the "American Foundation Studies in Government," which was sent to many physicians and asking if basic change in medical care is indicated and if not, if present practice needs to be revised, was as follows:

"My Dear Miss Lape:

In answer to your letter of January 16.

(Q) Is any essential change indicated in the organization of medical care in this country?

(A) If by change, you mean basic methods change, my answer is NO.

(Q) If basic changes should not be made, are there any revisions that should be made?

(A) Yes. There are certain developments in medical care that many should have, in the interest of both the patient and the state, who cannot afford them. Examples: Care of the teeth and eyes of underprivileged children.

(Q) Should such work be cared for at Government expense?

(A) Yes, if the family cannot afford to pay for it, the money should come from taxation.

(Q) Should there be Government doctors and dentists to do the work?

(A) No.

(Q) Who should do this?

(A) The regular medical and dental men of the community.

(Q) How would the doctors be chosen?

(A) By the patient.

(Q) What doctors could qualify?

(A) From the scientific standpoint, those licensed by the state. From the character standpoint, those certified by the A. M. A. and the A. D. A. through the County Society.

(Q) How would the patients who are ineligible from the economic standpoint for free care, to them, be screened out?

(A) By a filter system, i. e., as to indigency, by the Probate or Welfare agency; as to medical and dental need by the medical and dental representatives chosen by the medical and dental societies.

(Q) Are there not those who could pay part, for whom the tax-payer should not pay in full?

(A) Yes.

(Q) How would these be cared for?

(A) The same as the totally indigent, except that the family would be held responsible for that percentage of the cost that the financial filter would indicate.

(Q) On what basis would such a patient be allowed to pay?

(A) On a post-payment installment basis, if necessary.

(Q) Is there a need in general medical care for a post-payment plan?

(A) Yes.

(Q) For whom is it specially needed?

(A) The majority of people are not in position at the time of illness to pay cash.

(Q) How do these pay?

(A) On a post-payment basis.

(Q) Do these then get along pretty well by arranging their own financial matters with the doctors and hospitals?

(A) Yes.

(Q) Who are in need of a systematic setup to finance illness on a post-payment basis?

(A) Those in the low-wage group.

(Q) Where tried, do patients like it?

(A) Yes.

(Q) Are there available statistics bearing on a post-payment plan for the low wage group?

(A) There are.

(Q) Are the findings favorable?

(A) They are.

(Q) Is installment buying considered good financing?

(A) It is prevalent in America. If there is an instance where it is not only justifiable but absolutely indispensable, it is in medicine; unless one is to answer that in any case of illness when cash is not available, that the patient should be government supported. This premise is not tenable; therefore, the installment buying of medicine is essential.

(Q) Would all indigents then be cared for by the doctor of their choice, i. e., their family doctor?

(A) Not necessarily. This would be governed by: The circumstances of the community; the circumstances of the illness; the circumstances of the patient.

In large centers there is a roving unidentified population to be cared for in City, County and State hospitals.

In small communities some types of illness would have to be sent to a larger center.

In small communities indigent patients can be sent to the local doctors of choice or county physician, if indicated.

(Q) Would material or present plans for teaching purposes therefore be interfered with?

(A) No.

(Q) Does this setup as outlined deviate from the old *Basic* methods?

(A) No.

(Q) Does it modify the old methods so as to furnish to all who desire it those newer and more costly medical elements in medical care which have come about through medical advance and which were not



known, therefore not of financial consideration years ago?

(A) Yes.

Thanking you for your letter, I am

Most sincerely,"

I believe the Northwest Regional Conference could well adopt, as its code of procedure, that significant statement of Lincoln's: "I do not mean to say that we are bound to follow implicitly in whatever our fathers did. To do so would be to discard all the lights of current experience—to reject all progress, all improvement. What I do say is, that if we would supplant the opinions and policy of our fathers in any case we should do so on evidence so conclusive, and argument so clear, that even their great authority, fairly considered and weighed, cannot stand."

Dr. William F. Braasch, Rochester, Minnesota: Dr. Leland made a remark this morning to which I would take some exception, although I admire his knowledge, when he said that medical economics is taking too much of our attention and that science or scientific pursuits should be our objective I contend that he was wrong. In my opinion propaganda has only begun. It should be continued more than we have. It cannot be carried too far in the immediate future. Anything we can do to spread the knowledge of medical economics should be encouraged and abetted. Essentially the medical man is the best propagandist we have against the inroads of socialism, and so forth. In Minnesota we tried to spread this knowledge by various media; in the first place by frequent bulletins; in the second place by means of having medical economics topics for county societies spread through the medical columns in *Minnesota Medicine* so as to make the subject popular and readable. For this purpose we have a writer who puts the material into such shape that even medical men will be interested and read it.

So far as the methods are concerned to arouse interest in medical economics, the scheme proposed by Dr. Meyerding seems a very simple one. The suggestions by Dr. Loveland are also very good. I particularly like the county represented in the state wide scheme. The methods of propaganda suggested by Dr. Pino are very good; they are simple and appealing. Anything that we can do along this line should be furthered.

I believe that organization of the Northwest Conference states is in advance of the rest of the country. It is largely so because we have had interstate relationships. We have had representatives from various states who have met with societies and with officers, and there is no question that our own organization is one of the most important for this very simple reason. It has had a great effect in the past. It has been influenced by information we have received from this society or this group. Whether or not there is room for it in the future remains to be seen. In my opinion there is plenty of room. It is absurd to think we have reached the stage of saturation in medical economics. There is need for an organization similar to this one in the years to come.

Dr. R. L. Sensenich, South Bend, Indiana: The

presentation by Dr. Loveland was very good and extremely interesting, and the set-up of the Minnesota State Society is very effective. There is one thing, however, upon which I should like to dwell, and this concerns the fee paid by the WPA workers. Some of you have received bulletins sent out by the Committee on Legislation, calling attention to the poor set-up in some communities in which the amount paid by the WPA workers was only 50 cents. While we approve that the individual have medical services, the danger is that we are setting up standards which are very meager. In some communities they are entering into a prepayment medical service on the basis of an amount which at least is not more than one-third of adequate payment. We must recognize the fact, also the WPA workers may receive another kind of a job and, therefore, disappears from this group who pay such low fees. Unless you check on him he will continue to receive these benefits.

I am not sure that I understood Dr. Loveland, but I would like to ask whether in the case of subsistence level this individual is carried on the prepayment plan with the physician. Dr. Loveland spoke of that and it was not very clear to me how the individual arranged with the physician. Mr. Hopkins last May admitted that these individuals would not be able to pay for medical care and at that time Public Health Agencies considered setting up services for this purpose. The point was that these people had been on the support of local communities prior to the time the federal money was put in their pockets and with the return of the individual to community responsibility there had been a disinclination on the part of local authorities to re-assume that responsibility. As to what should be done about it, whether we should create a precedent in accepting these patients on prepayment basis or a sum that is entirely inadequate is a question. I am glad it was brought out here. It is widespread and has the possibility of serious consequences.

Dr. A. D. McCannel, Minot, North Dakota: This plan as outlined is very interesting. Of course, I come from a thinly populated state, but our Economics Committee of the State Society has been working for two years and I believe our plan has some merit. Our last Legislature created a State Welfare Board and County Welfare Boards. The County Boards are under the jurisdiction of the State Board and the personnel is appointed by the County Commissioners. The Welfare work in the county includes medical work and we have a number of projects under way. In some cases the budgetary needs of a family are not taken care of sufficiently by the \$44.00 a month if medical care is necessary. When such a thing occurs the County Administrator and the Welfare Board can increase and take care of the budgetary needs of that family over what they get from the WPA and in that way medical care is taken care of. The State Society has entered into this agreement with the Welfare Board and County Boards: The County Commissioners make levies for poor relief. The money is turned over for the operation of the Welfare Board so that it is taken out of the hands of the politicians. The State Legislature turns over some-

thing for the general welfare work. That fund is in the hands of the State Welfare Board and is given to the counties on the basis of need by the monthly report that comes in. The power we have over the County Boards is that unless they agree to the plan and live up to it so that all relief work comes through the Welfare Board of that County, not one dollar of the state funds will be given to that county. The patients on relief have a choice of their physician and the agreement is one-third of the minimum fees that were prevalent in the state, which means that for a major operation \$50.00 is the fee. The County Welfare Boards have complete control and its work is entirely out of the hands of the politicians.

As for the farm group, plans are still being worked out to cover their medical needs.

Mr. Thomas Hendricks, Secretary of the Indiana State Medical Society, Indianapolis, Indiana: Being Secretary of our State Society I can say that we in Indiana have thrown ourselves into the middle of the battle. At the present time as a member of the Indiana Legislature, I am a member of a committee of twenty-four which is studying a method whereby Indiana may conform to the Federal Social Security Act. What Dr. McCannel has just said gives us a great hint. It is comforting to know that what is being planned by the social workers in Indiana is being planned by social workers in other states. At the present time in Indiana we have this bill up for creation of a Public Welfare Department which has many provisions similar to those Dr. McCannel has mentioned and which have been adopted by North Dakota.

In is interesting in this connection to notice the position of the social workers. They have out-Wagnered Senator Wagner. They have gone far beyond the limits laid down in Washington. If you allow them to draw up the measure in your state, you will find that the entire control will likely be in the hands of the social service workers. There is a bill under consideration now which was written by White, who is Head of the Indiana University School for Social Service; he trains and sends out each year some sixty to eighty students who must have places of employment in Indiana, and Professor White takes good care of these students. We have a State Welfare Board of nine members. Those members will be picked by the Governor and are men of high standing in the communities, are of good background and intelligent. There will be a sub-committee to function under this general Welfare Board or commission. Going back to our non-employment committee, we have a very fine committee. The men could well make up a Who's Who of Indiana and yet how often have they met? Twice. Who does the work? Professor White, Miss Deem who is a social worker and another man who has social service connections. What we have done here is to shoot the bill full of holes. I am telling you this because I am convinced that the bills that will be presented to your State will not be the Social Security Act but will be an enlargement of it to include all the social service workers, if possible. Our bill now is quite a master-

piece, I think. We have the provision whereby there would be centralization of all control right in this Executive Committee. We are going to have local county boards who are picked by local authorities and groups. We think the plan is going to be very satisfactory, and I was interested to learn that other states have very similar plans.

Dr. F. L. Loveland, Topeka, Kansas (closing): I am very thankful indeed for the discussion. I also want to thank the various State Secretaries who did respond to our inquiries for help while we were trying to work up this subject.

Just a word with reference to the indigent problem as we have it in our state. Kansas has been one of the very few states that has been absolutely denied the benefit, if I can put it that way, of federal aids in so far as doctors are concerned in caring for the large number of subsidized individuals in the state. There has never been a dime of federal money go into our pockets. In some of the rural communities our doctors were in desperate conditions. Everybody in some of these communities was on relief, including many of the doctors. There was an urgent demand for some sort of scheme which would allow the doctors to go on with their work. We do not like this prepayment plan, that is as we now have it. We do not think it is ideal. On the other hand, as a desperate measure, we had to provide some way of getting an income for our men which would allow them to live. I do not like to refer to it as income.

We have tried to offset that in this way. With everyone of these people who have been federally subsidized, including the WPA workers, the doctors themselves, have attempted to carry on an educational program, letting them know that this arrangement is not permanent, that it is a bridge, so to speak, to enable us to get along for the time being. We are looking for something better.

It is a matter of interest to us in Kansas to know that in many of our rural communities the workers, the county commissioners and the doctors have been very much pleased with the results. The workers know this is not a permanent thing. They realize full well that as soon as the emergency is over, things will go back onto a normal basis.

We would really like to have your suggestions on facing this issue because the problem has been very acute in Kansas. We are not persuaded that the prepayment plan is good. It is solving our problem in some of the communities by keeping our men alive and I do not know what else we can do until we get something better.

One of our many difficulties has been that we have not had the machinery available to make a simultaneous study or to study more than one problem at a time. We have felt greatly handicapped because of that. We feel that with the development of such a scheme as noted here it will give us an opportunity to study many problems at once so that we can advance more rapidly.



## THE DIAGNOSTIC VALUE OF THE X-RAY IN DISEASES OF THE CHEST

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The question of the relative diagnostic value of the x-ray has been the subject of debate since its very introduction. The many who rate it "Alpha," are offset by those who insist upon "Omega," and so it might be well to consider just where in the diagnostic alphabet this mechanical adjunct rightfully belongs. We shall confine ourselves to a consideration of the part it plays in the diagnosis of diseases of the chest. Any such study, if it includes the infectious diseases, must yield the first place of importance to pulmonary tuberculosis and so we shall begin with that disease and its complications.

The diagnosis of active pulmonary tuberculosis in any of its stages, but particularly in its minimal form, still offers very concrete and perplexing problems not only to the rank and file of the profession, but also to those of us who have selected this restricted portion of the human body for our special study. As clinicians confronted with minimal active pulmonary tuberculosis, we attempt to arrive at a conclusion through the following individual steps and in the following chronological order: First comes the story of the individual, past and present. As a working basis, let us construct a typical example of early lung activity.

The *past story*, then, will attest to an inherited disposition (anlage) towards diseases of the respiratory tract, to wit, frequent colds, bronchitises, pneumonias or even pleurisies.

The *familial history* may admit active pulmonary tuberculosis in father, mother or other close contact in early life.

The story of the present illness may admit any of the following symptoms:

1. Local:
  - a. Cough
  - b. Dyspnea
  - c. Pectoral pain
  - d. Hemorrhage

2. Constitutional:
  - a. Weight loss
  - b. Afternoon fatigue
  - c. Afternoon temperature
  - d. Night sweats

The *physical findings* will consist essentially of any or all of the following:

1. Lagging of the affected side
2. Impaired percussion note
3. Altered breath sounds
  - a. Harsh breath sounds
  - b. Distant breath sounds
  - c. Prolongation and elevation of expiratory note
4. Increased transmission of spoken and whispered voice
5. Râles, localized, not dispersed by coughing and present for one week or longer

A carefully kept temperature chart will show an afternoon rise. The sputum may show tubercle bacilli. The blood may show a leukopenia and a relative lymphocytosis.

This, you will agree, constitutes a simple and elementary clinical picture of early lung tuberculosis so true to form that we rarely encounter it in such complete detail. And yet even in such an instance, can the x-ray be of further help? You will agree to an affirmative answer. Carefully made pictures will reveal the extent of the lesion; will differentiate the fresh from the old; suggest the degree of activity; bring out in bold relief the areas of softening, and oftentimes indicate cavitation so minute as to escape detection by physical methods. However, it is in atypical minimal active pulmonary tuberculosis with meager symptoms and masked or entirely absent physical signs that we ask for and receive from the x-ray moral support for the diagnosis of activity. In moderately and far advanced lesions, the x-ray may hardly be needed for confirmation. However, here too, it serves a very valuable function in that it draws a fairly sharp line of demarcation between healthy and diseased lung areas. It offers also a therapeutic guide in revealing the presence or absence of pleural adhesions and thereby influences surgical possibilities. In the complications of pulmonary tuberculosis, the x-ray is invaluable. Thus the clinical confusion between thickened pleura and effusions of mild degree is readily solved. Or again, the nature of an effusion can be determined. Possibly miliary tuberculosis should be suspected or diagnosed clinically without great difficulty and yet the x-ray paints so graphic and dramatic a picture that it has proven in-

dispensable. There remains one more important tuberculous situation with chest manifestations and a clinical course so frequently atypical and obscure that it demands x-ray help almost in every instance—juvenile tuberculous adenitis. It is not within the province of this paper to discuss, even in a haphazard fashion, this condition. Suffice it to say that, denied confirmation by the x-ray, the accuracy of the diagnosis would suffer irreparably.

Leaving the subject of pulmonary tuberculosis, we will consider next neoplasms of the lung and pleura. Benign growths are relatively rare. It might be well, therefore, to consider them first in inverse ratio to their importance. As a matter of fact, because of the essential brevity of this paper, I should like to touch on only one before passing on to the malignancies, and that is actinomycosis. This particular tumor, while certainly not of frequent occurrence, is encountered just often enough to prove disconcerting. I know of no chest situation more readily confused with active pulmonary tuberculosis. The local and constitutional symptoms are frequently identical and consist of pectoral pain, cough, dyspnea and bloody sputum. The physical findings depend upon the type, of which there are three. First, the bronchitic, in which the physical signs, particularly breath sound changes and râles, while they follow the bronchial trees, not too seldom extended into the apices and the periphery. Second, the miliary type in which the clinical picture in its entirety—symptoms, signs and progress—is indistinguishable from miliary tuberculosis. Third, the bronchiectatic type which in many respects simulates a far advanced active pulmonary tuberculosis. This disease, irrespective of type, has certain distinguishing features which, if present, are very helpful but they are all too often not in evidence. Thus, for example, it has a peculiar tendency to suppurate through bony tissue, ribs and sternum, whereas tuberculosis, selecting a course of lesser resistance, destroys soft tissues. Again, the organism, a streptothrix fungus, is sometimes found in the secretions. However, the x-ray supplies invaluable aid in the differential diagnosis.

Before passing to the malignancies, we might mention pulmonary syphilis. Here again the situation may be very obscure and demand a very perfect set of pictures to arrive at the correct

conclusion. Syphilis of the lung is certainly not rare. It occurs in one of two varieties: the indurative, which is the most common, and the gumma. In the diagnosis of either type the history is all important because the exclusion of tuberculosis in the story and the inclusion of syphilis plays a big part. Or again a positive Wassermann or evidence of syphilis elsewhere in the body are suggestive. The symptomatology may mimic tuberculosis very closely although, as a rule, the symptomatology is milder than seems consistent with the abnormal physical signs. The bases of the lung and the hila are the usual seat of invasion, which is helpful. However a gumma affects base and apex with equal frequency and the physical signs of a broken-down softened apical gumma cannot be distinguished from apical pulmonary tuberculosis. Tuberculin is notoriously of negligible diagnostic value in adults and so in this situation the x-ray is again called upon for help.

We come, then, to the malignancies of the lung, carcinomata and sarcomata, both primary and metastatic. That the former, the primary types, are increasing in frequency at an alarming rate will not be denied. The explanation of this increase like that of cancer itself, is not forthcoming. Explanations there are by the score, illogical and untenable most of them, unproven all of them. The one fact remains—primary malignancy of the lung is today of common occurrence. In metastatic malignancies the primary tumor site in matter of frequency is probably about as follows: Breast, thyroid, bone, prostate, pancreas, suprarenal and the gastrointestinal tract. The clinical picture of malignancy of the lung of either type, but more especially the primary, occurring early in the fourth or fifth decade of life, can be baffling, and its differentiation from lung tuberculosis anything but elementary. The symptoms, as in moderately and far advanced active pulmonary tuberculosis, are essentially:

1. Local symptoms—cough, dyspnea, pain and bloody sputum. This latter symptom is usually an early and a constant one due, naturally, to the erosion of a vessel. If this be a through and through erosion, the bleeding is usually a harmless seepage, whereas if it be the result of a lateral wall or so-called window erosion, the result is fatal.



2. Constitutional symptoms, except for the absence of the typical tuberculous temperature curve, are identical; to wit, loss of weight, fatigue, cachexia, sweating, gastrointestinal upsets, etc.

The physical signs, depending upon the size and site of the tumor, are identical with those encountered in far advanced active pulmonary tuberculosis. In all fairness I must admit that even the x-ray has failed me more frequently in the differential diagnosis of lung malignancies than in any other situation. On the other hand, it has time after time clearly and definitely shown me such a malignancy where I had merely suspected it as a possibility.

We come next to the matter of pneumonia—pneumonia in its various forms,—lobar, bronchial and antral. Surely here is a field of tremendous usefulness for the x-ray. Or have we reached the pinnacle of complacency where we feel no need for help in this disease? Granted we arrive at the diagnosis of acute lobar pneumonia quickly and accurately in the average typical instance, yet its confirmation with a portable picture is helpful. It has a wider scope in the broncho-pneumonias where the diagnosis at best is uncertain. And the not too infrequently encountered atypical, so-called central pneumonias, atypical in every respect as to onset, symptoms, signs and progress, they indeed need the x-ray for diagnosis or confirmation.

A few brief words concerning abscess of the lung, a condition which can prove most baffling. The most common causes of abscess of the lung are as follows:

1. Most frequently the result of an unresolved pneumonia.
2. Direct rupture of an abscess into the lung.
3. Aftermath of trauma.
4. Aspiration of a foreign body.
5. Secondary to a carcinoma of the esophagus.

In the diagnosis of an abscess of the lung, the history of a previous recent pneumonia or trauma or aspiration is naturally of prime importance. Next, the clinical course with its septic temperature is very suggestive. The physical findings are essentially localized dullness, cavernous or amphoric breathing; coarse, bubbling râles, bronchophony and egophony. However, in my experience the history, symptoms and signs, all coordinated, are frequently insufficient and demand corroboration by the x-ray.

I wish next to consider the diagnostic value of the x-ray in diseases of the heart and its vessels. I have for the past ten years found it interesting, simple and instructive to study heart disease epochally; that is, I have divided human life arbitrarily into three epochs or eras of twenty-five years each. My first epoch covers the first twenty-five years of life—infancy, childhood and adolescence. The second epoch embraces a man's prime, and the third takes in his senescence. I appreciate that no such hard and fast line can accurately be drawn; that prime often extends into the third epoch and in some instances an individual actually purloins for himself a fourth epoch. However, we are concerned with averages and so my classification is not too bad. Besides, it admits of a very convenient division and study of heart disease. We find, for example, that each epoch has its distinctive major type of heart disorder.

In the first twenty-five years of life, while we encounter the so-called athlete's heart and abnormalities in both rate and rhythm, there is one characteristic outstanding type of heart disease—acute rheumatic endocarditis. This type of heart disease is, in the vast majority of instances, due to acute rheumatic fever. Now acute rheumatic endocarditis, irrespective of the valve or valves involved, offers, as a rule, no great diagnostic and differential diagnostic problems. However, the x-ray provides important corroborative evidence as follows:

1. In mitral insufficiency the heart shadow is increased in its cross diameter, the right ventricle furnishing the bulk of the hypertrophy. The left auricle remains unaltered.
2. In mitral stenosis, on the other hand, in addition to an hypertrophied right ventricle, we see an enlarged left auricle plus, as a rule, congested lungs and hila.
3. In aortic insufficiency the x-ray reveals an hypertrophied left ventricle and, as a rule, a dilated aorta.
4. In pure aortic stenosis we encounter only a moderate hypertrophy of the left ventricle and apparently an aorta of normal width.
5. In combined mitral stenosis and insufficiency the right ventricular hypertrophy frequently reaches such proportions as to displace the right auricle sharply to the right.
6. In combined mitral and aortic valvular

disease we encounter not alone an immense left ventricle, but an enlarged left auricle as well.

While, as a rule, we experience no great difficulty in differentiating these valvular lesions clinically, the additional information supplied by the x-ray is very valuable.

The second epoch of life, from twenty-five to fifty years, ushers in a new and very formidable type of heart disease, syphilis of the heart. It follows the chancre, as a rule, fifteen to twenty-five years. It is not infrequent and, while statistics vary widely, it can be conservatively stated that from four to six per cent. of all male adults who die after the age of forty-five reveal evidence of cardiac syphilis.

Unlike acute rheumatic endocarditis, the diagnosis of early syphilitic aortitis is not simple and yet if any progress is to be made in the treatment of this disease, it may be instituted early. After the advent of cardiac complications, the treatment is both hazardous and ineffectual. Clinically, the earliest subjective and objective manifestations of syphilitic heart disease are narrowly limited to the aorta and their detection is by no means an elementary matter. The x-ray, however, reveals quite early concrete evidence of its presence through a widened, dilated aorta, and as the disease progresses and this widening reaches aneurysmal proportions, the orthodiagram or 2 meter plate often suggests rather than corroborates this complication.

The third epoch of life takes in its senescence. We encounter here not a true disease of the heart but rather a heart impaired by the inevitable ravages of time, changes in the heart and its vessels for which we have coined the term "senile ectasy." I like to think of this type of heart impairment, as it affects the myocardium, as chronic myocardial insufficiency, a functional situation, if you will, rather than an organic one, for at autopsy there is little physical evidence of disease.

Accordingly, the x-ray reveals only meager deviations from the normal. The chalky, dilated aorta which through the years has lost its elasticity may show a moderate spreading. The left ventricle, too, may reveal a slight or moderate enlargement. We come, finally, to the most important, dramatic and possibly most discouraging type of heart disease in human life, disease of the coronaries. We encounter clinically no great difficulty in the diagnosis of coro-

nary insufficiency. Nor do we need any help in the differential diagnosis of the so-called anginal syndrome from acute coronary occlusion. This disease is discouraging, not because of an obscure diagnosis but because of its great frequency, its inevitability, and our utter lack of prophylactic management. We treat it symptomatically *after* its arrival.

We owe the x-ray much for its many and varied diagnostic aids but we are prompted to demand still more. We are urged to ask, "Visualize for us the coronaries. Let us see under the fluoroscope or in the plate the degree of patency or the amount of narrowing of these important vessels."

30 North Michigan Avenue.

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## THE SOCIAL SECURITY ACT AND THE DOCTOR

N. GENEVIEVE CHIPMAN, M. D.

SAVANNA, ILL.

I read with keen interest the article in the November issue of the ILLINOIS MEDICAL JOURNAL on the "Social Security Act and the Doctor," by Chas. B. Reed, Chicago, Ill.

The *two forces* mentioned by Dr. Reed, striving for dominance in America are quite interesting; the first, the person who is striving to live his own life and carry on his own responsibilities. Only a very small percentage, as I see it, are not willing to do this if provided with work the year round at a living wage. The second, to have people subjected wholly to herd ideas whether advantageous or not. This I believe was a forced issue.

About thirty years ago we were prosperous in the U. S., plenty of work for everyone at all times, the wage question often in dispute, but on the whole most individuals were satisfied.

Labor unions were organized (not talking against labor) to protect each branch of labor, with a drive for shorter hours at the same pay. Strikes were evidenced continuously and greater demands made from employers, with the result, industry began to look about for labor saving devices and inventions became numerous, some inventions doing away with at least fifty employees, some with even a greater number.

This began to cause an unemployment situation particularly in the winter months and a demand was made upon all charitable organiza-



tions, county funds and every available act of charity. The poor or indigent have been with us always, but in surprisingly increasing numbers since the depression.

In 1914 we had the beginning of the World War which relieved the unemployment situation at that time and after 1917 when the U. S. was forced into the war, began our boom. Higher wages, shorter hours, and everyone happy, spending and "how"? Did anyone at that time predict what would happen in 1929, when the bomb-shell burst and with the crash began our present depression. The international bankers forced the sale of worthless foreign bonds on an ignorant investing public. The stock market made a gambling issue of trade supposed to be legitimate. Stocks that could be bought for \$25.00 and \$40.00 a share were selling on the stock exchanges for from \$275.00 to \$400.00 a share and not paying dividends, and along with this "bonds" and all other forms of securities. Some capitalists were making as high as 1100% on their investments. The monsters of power and greed increased their capital at the expense of an ignorant investing public who swallowed the "*prosperity gag*" cord, hook and line.

What happened? You know, and I know.

The depression has caused an economic loss to our nation of 265 billion dollars, only 96 billion less than the World War. Suffering, sorrow, idleness, hunger and poverty surrounded us everywhere. Who in your family or in mine have not succumbed because of worry over losses, either in closed banks, bond or stock investment, loss of real estate through mortgage, or what not? How many patients have entered asylums because of worry over their losses, penniless and with no hope in the future? How many suicides have been recorded because of this same reason?

We all, if unbiased, must agree that our depression was caused, primarily, by injudicious, unintelligent and sometimes immoral handling of our government and finance. There must be a substantial correction for these abuses, which were responsible for marketing questionable bonds, for gambling with depositors' money, and for turning the stock market of Wall Street into a Monte Carlo, or a corner crap game. This correction has been sidestepped and neglected. The mighty men of power, greed and conquest are still trying to rule and financial welfare is preferred to human welfare.

As you perhaps know, our national and private debts have reached approximately 235 billion dollars; add to this a conservative loss of 264 billion sustained by our citizens in 1929 and with this total of nearly 500 billion loaded upon a people with no money, no work, factories and banks closed, business at a standstill. In 1932 a new president was elected to drag us out of this "hole."

Has a surgeon ever operated upon a patient when he found conditions so grave and complicated he did not know where to begin or end his operation? Has a medical practitioner ever handled a case where complications were so many and so grave he was at a loss to know even how to relieve his patient? Can we as a profession criticize an effort, no matter how weak it may have been, to treat the complications of disease the U. S. was afflicted with after 1929, and where would we have begun or ended? Our diagnosis would most likely have been a malignant cancerous growth permeating every organ of our nation, and our prognosis would have been, the case is hopeless. We can only alleviate the suffering.

The octopus of power and greed is destroying vitality and termites are destroying the very foundation on which our nation was built. Go about among your neighbors, your patients, your intimate friends; check up on families that were independent, had saved up a comfortable sum to take care of old age and death, and these same people, many of them almost ready for the "Grim Reaper," are now homeless, penniless, on relief, and unless an old age pension relieves them of worry, the county farm, suicide or asylum will be the ultimate end. I can count my losses in the thousands and many of you can do likewise.

I attended an Armistice Day address to the American Legion and the minister's address was taken from this saying of Christ; I came not to offer you peace, but a sword. This minister said, there can be no armistice or peace until restitution has been made for the greed, theft and fraud that caused the depression. He said: "Brothers of the Legion, you must keep on fighting for an old fashioned honesty; the kind we had in olden days. You must keep on fighting until we have justice in our courts and among our jurymen. You must keep on fighting until we have truth and honesty in all busi-

ness and in business dealings. So pick up your sword and fight until you have all three in government, civic, federal and state; in all industry, and above all in yourself."

So, likewise, we of the medical profession, must pick up our sword and fight for this accomplishment and we will be able to face the Social Security Act, State Medicine, or any other evil that may stand in our path.

The 8 billion dollars spent to bring back a national recovery, to stabilize banks, to keep men and women from starving, from suicide or the asylum, is a blessing, a narcotic the nation could not have lived without. Criticize not an "effort" to alleviate "*pain and suffering*," to feed and clothe the worthy people who were "*robbed*" of home and money and must now depend upon the social security act to protect them.

Let us begin now in our homes, schools and churches to teach truth and honesty of the old fashioned type, justice and brotherly love, instead of power, greed and conquest. Then and only then will our nation have a fighting chance for complete recovery from an otherwise incurable disease, even though it take a century. There can be no armistice, no peace, until we have honesty, truth and justice in ourselves.

The Social Security Act as it effects medicine is up to the medical profession; whether or not we have state medicine is up to our profession. For our service we are entitled to a living wage, based upon our ability, standing in our profession, and expense governing our practice. Who is to decide what this fee shall be? Certainly not lay people, reformers and politicians. When asked to give something for nothing, to make sacrifices, let us answer, very well, if we reduce our fees, how much will you reduce your salaries? If the medical cost is going to be such a burden, how much greater is the burden of salaries for all office seekers who are to manage and distribute this service? Make it obligatory for a check both ways and see that an equal reduction is made and all will be satisfied.

Our profession has suffered most from the depression. We have given more and received less than any other line of industry, labor or political job seekers. "*Who are we*" to allow some politician to demand we reduce our rates when this same person is drawing a nice fat salary, with assistants and all expenses paid in line for a

retirement pension, and has never given the time or expense to master a profession such as ours; has never worked twenty-four hours a day, out in all kinds of weather, traveling all kinds of roads, sleepless nights, while the politician works eight hours and spends half of that time in worthless controversy over whether or not a certain person should receive help?

In distributing most charity it costs about 50% in expense of distribution (high salaried officials) before it reaches the channels it was intended for. Is this a greater cost than medical care? You answer. We of the medical profession have brought on our own grief; we have been chicken hearted, so sorry for the indigent, gave them our medical care and provided food besides, while our critics sat by and let us carry the burden. We gave our knowledge to the world and if a discovery were made we were so anxious to broadcast it to help suffering humanity and in a very short time the newspapers, magazines and all periodicals made front page advertising of it to sell their "*wares*." What happened? Patent medicine men, druggists, and what not perfected it under a trade name, spent hundreds of dollars in advertising, sold it to quacks "to use as their bait"; result for the profession, empty offices that were at one time filled, empty purses that at one time were full and could pay the butcher, the baker and everyone. Broadcasting immunization and what not for the laity to carry on with a public health nurse.

"*We*" call ourselves individualists, when a patient comes into our office, to tell them what we are prescribing so they can go to the corner drug store for the next service; or, if you please, pass them out a few samples with the name on the box so the druggist can fill the order the next time; or tell them to go to the drug store for a certain patent medicine, or to rub on "*Vick's*," or to "*hook up*" with a quack to increase the meal ticket. Are we then as a profession, to blame for our predicament? Please do not blame it onto the Social Security Act, nor to the philanthropists, for as a profession we have a knowledge it has taken years to acquire, and with such we should command, instead of being dictated to. Every member of our profession that is serving some corporation, public health board, clinic, or in any line outside of an individual office, resign and put back into our offices the patients that were formerly there



but now are profiting from a knowledge that is not receiving the remuneration it justly deserves. Wipe out the chiselers in our profession; put back truth and honesty, in it, and when we do this we will not have to argue whether it is legal for corporations to practice medicine for no physician or surgeon will associate himself with a corporation to practice medicine.

Perhaps if a very few of my remarks were to sink in deeply into the minds of the members of our profession, realizing that we and we alone are responsible because of our generosity and henceforth keep our knowledge to ourselves and within the limits of our profession, practice honesty and truth among our patients, then shall we profit as we should. Think it over, and until you do our cause has been defeated.

310 Main St.

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#### STANDARDS FOR PRIVATE SANITARIUMS FOR THE CARE OF PATIENTS WITH NERVOUS OR MENTAL DISEASES

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S. H. KRAINES, M.D.,  
CHICAGO

Physicians in the state of Illinois are urged to cooperate in the maintenance of standards for the care of patients in sanitariums for mental and nervous diseases. For years conditions in these institutions have been notoriously poor. Grimes,<sup>1</sup> in 1931 and again in 1934, working under the auspices of the Illinois Society for Mental Hygiene, stated that there was much confusion because of the great variation in facilities provided by "sanitaria" and suggested legal regulation.

Suggestions and efforts for improvement met with little, if any, success. One sanitarium owner openly defied the state to license him, and insisted on operating without a license. In the situation as it existed many physicians advised patients that they would receive better attention in the state hospitals than in many so-called sanitariums. In several instances persons with little practical experience in handling patients with mental illness and with not even ordinary nursing experience would proclaim an out-dated

home as a sanitarium and invite physicians and relatives to send patients to them.

Under the supervision of the Alienist to the Department of Public Welfare, a group of standards has been set up. These are being sympathetically enacted, so that as little hardship as possible will be borne by institutions which manifest a sincere desire and ability to care properly for mental and nervous patients. These standards have been approved by Mr. A. L. Bowen, Director of Public Welfare, and endorsed by the Illinois Psychiatric Research Council.\*

The first provision is a subdivision of the institutions into two groups: sanitariums and rest homes. The difference between them is that sanitariums may receive patients with all types of mental illness, whereas rest homes may receive only patients who are chronically ill and *who are not in need of active treatment*. The former type of institution is required to have facilities to take care of patients who are acutely ill, that is, facilities necessary in an approved hospital, whereas rest homes need only facilities for nursing care.

The authority for these provisions is derived from the Illinois Statutes:

\*This Council was set up in 1933 at the request of the Governor and consists of a representative of the psychiatric departments of Chicago, Illinois, Loyola, Northwestern and Rush Medical Colleges, with the Alienist, Criminologist and Chairman of the Board of Public Welfare Commissioners of the Department of Public Welfare.

Chapter 23. S. 28. All Institutions, other than State institutions, giving treatment and care to persons suffering from mental and nervous diseases, shall provide the Board of Administration \* \* with detailed information from time to time, regarding their physical equipment and medical and nursing service, and shall furnish the board a written certified statement every three months, giving the admissions, deaths and discharges during the previous three months. The board shall license such institutions as it deems, after careful inspection, to be suitably equipped and conducted for the treatment and care of persons suffering from mental or nervous diseases, and may in its discretion revoke such license and no person so suffering shall be committed to or received or kept against his or her will, contrary to law, in any such institution not having a valid license from the board. Any superintendent or responsible head of an institution conducting any such institution with a license therefor as hereinafter provided, or receiving or keeping, contrary to his, or her will, any person in any such institution, not licensed as aforesaid, shall be punished by a fine of not less than fifty dollars nor more than one thousand dollars, or by imprisonment in the county

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1. Illinois Medical Journal, 65: 154, 1934 and 59: 346, 1931.

jail for a term not exceeding six months, or both such fine and imprisonment, in the discretion of the court.

Chapter 85. S. 32. Non-resident insane convicts in private asylums.) S. 32. Insane persons not residents of this state shall not be detained in any private institution for the insane of this state unless committed thereto in accordance with the laws of the state or territory of which they are residents, or with the laws of this state.

Chapter 85, S. 33. Administration and enforcement of laws). S. 33. The Administration and enforcement of the laws relating to the insane of this state and their treatment, in or out of hospitals or asylums for the insane, is entrusted to the State Commissioners of Public Charities, \* \* who shall have power, from time to time, with the approval of the Governor and Attorney General, to make rules and regulations on the

\*\*Under the Civil Administrative Code of 1917, the powers and duties of the State Commissioners of Public Charities and the Board of Administration are vested in the State Department of Public Welfare.

1. The licensing of all houses or places in which any person can be lawfully detained as insane or of unsound mind, and the withdrawal of licenses granted by them for cause shown, with the approval of the Governor and Attorney General.

2. Regulation of the forms to be observed relating to the commitment, transfer of custody and discharge of lunatics not in conflict with the provisions of this act.

3. The visitation and inspection of all houses or places in which any persons are detained as insane and of all persons detained therein.

4. Reports and information to be furnished by the managers or trustees and medical superintendents of all houses or places subject to the provisions of this act, and by the boards of auxiliary visitors herein provided for.

following matters, so far as the same are not inconsistent with any laws of this state.

Chapter 85, S. 37. Voluntary patients). S. 37. Any person who may be in the early stages of insanity who may desire the benefit of treatment in a state or licensed private hospital for the insane as a voluntary patient, may be admitted to such hospital on his own written application, accompanied by a certificate from the county court of the county in which such applicant resides, stating that such person is a private or county patient, as the case may be, and such person shall, if admitted to a state or licensed private hospital for the insane, have the same standing as other private or county patients: Provided, that all voluntary patients shall have the right to leave the hospital at any time on giving three days notice to the superintendent.

The requirements established for sanitarium include: the provision of a *resident physician* and *graduate nurses*, and the maintenance of *adequate medical records* which shall conform closely with those recommended by the American Medical Association for hospitals:

In the standards set up for rest homes, patients who are in need of active treatment or who need mechanical restraint may not be held in the institution. Furthermore, in an effort to emphasize the distinction from sanitariums the name "sanitarium or sanatorium" may not be used. Institutions for the feeble-minded are included in this group.

Form 105

FIRST ADMISSION—INSANE

FEMALE

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(Name of Institution)									
NAME	IDEN No.				COMMITTED			VOLUNTARY	
-----									
PSYCHOSIS—No.	Group				Type				
AGE ON ADMISSION	years	MARITAL CONDITION—Single		married	widowed	divorced	separated	No. OF CHILDREN	
NATIVITY (State or country) of patient		of father		of mother		YEAR OF ARRIVAL IN U. S.			
CITIZENSHIP—of patient—American		foreign		of father—American		foreign		RACE	
EDUCATION—None		reads only	reads and writes	common school		grade	high school	years	
		collegiate	years	Age at completion of highest grade			years		
OCCUPATION					RELIGION (denomination)				
ENVIRONMENT—Urban		rural		ECONOMIC CONDITION—Dependent		marginal		comfortable	
ACTUAL RESIDENCE—County				P. O. ADDRESS					
TIME IN STATE—Last residence				Total time					
ETIOLOGICAL FACTORS OTHER THAN HEREDITY									
MENTAL MAKE-UP		TEMPERAMENTALLY—No. striking traits		seclusive	over-active	depressive		unstable	
PRIOR TO ONSET		hesitant	suspicious	egotistical	irritable	other traits (specify)			
		INTELLECTUALLY—Idiot		imbecile	moron	borderline	average (normal)	super-average	
FAMILY HISTORY OF MENTAL DISEASES									
FAMILY HISTORY OF NERVOUS DISEASES									
FAMILY HISTORY OF MENTAL DEFICIENCY									
FAMILY HISTORY OF INBRIETY (alcohol or drugs) (specify)									
ALCOHOLIC HABITS OF PATIENT		Abstainer		temperate (specify)					
		Intemperate (specify)							
ACCOMPANYING SOMATIC DISEASES OR DEFECTS NOT AN INTEGRAL PART OF MENTAL DISEASE									
DURATION OF PRESENT ATTACK BEFORE ADMISSION				years	months	days	No. OF PREVIOUS ATTACKS		
DATE OF ADMISSION				19					



## CHART 1

For card index (all institutions)	(alienist's office)
Name	
Age	Sex
Name and address of guardian	Marital status S M D W
Name of referring physician	
Address	
Committed, adjudication, voluntary	
Not under commitment	
Date of onset of illness	
Classification of illness	
Date admitted	Discharged
Institution	

An inspection was made of all institutions in July, 1935, and the requirements were discussed with the managers. Enforcement of the requirements was made effective on January 1, 1936. A visit to the institutions early in 1936 revealed distinct improvement in the institutions which requested licensure as sanitariums. With few exceptions, the institutions appreciated the wisdom of the requirements and agreed to comply with them. Some have exceeded the prescribed necessities; two have added a full time occupational therapist. In some there is one employe for each two or three patients.

The practicing physician is requested to refer patients only to institutions that are properly licensed and to aid in keeping the standards at as high a level as possible.

#### DETAILS OF REQUIREMENTS FOR LICENSURE

Private institutions to care for patients with mental or nervous illness shall be divided into two groups:

1. Sanitariums and 2. Rest Homes.

##### SANITARIUMS

(a) *Definition.* For the care and treatment of persons suffering from any form of mental illness or defect. Patients may be received:

1. Through the processes of commitment authorized by statute—voluntary or compulsory commitment, and the appointment of a legally constituted guardian.

2. As voluntary guests.

(b) *Conditions for Licensure.* In considering an application for license attention will be paid to the adequacy of the following:

1. *Physical Plant:*

(1) Buildings—floor space; furnishings; state of repair.

(2) Heating and ventilation.

(3) Relation to surrounding property, zoning ordinances, etc.

(4) Fire prevention.

(5) Protection of patients from injury—windows, radiators, etc.

(6) Bathing and toilet facilities.

(7) Food preparation and distribution.

(8) Accommodation for personnel.

##### 2. *Medical Equipment:*

(1) Hydrotherapy equipment — continuous tubs; pack equipment; stimulating equipment.

(2) Clinical laboratory facilities.

(3) Emergency hospital facilities.

(4) Occupational and recreational facilities.

##### 3. *Personnel:*

(1) A duly licensed physician who shall reside on the premises.

(2) A graduate registered nurse, who has had psychiatric experience, in charge of the nursing service.

(3) A sufficient number of nurses and attendants.

(4) An adequate nonmedical personnel.

##### 4. *Operation:*

(1) Adequate medical records shall be kept.

(2) The Department of Public Welfare shall be notified every three months of the admission, discharge, (Chart 2) and transfer of each patient and be furnished with such statistical information, (Chart 1) as is prescribed by the Department. Deaths and accidents shall be reported to the Department within three days of their occurrence. (Chart 3).

(3) Mechanical restraint shall not be applied to a patient except on the written order of a physician. This written order shall not be valid for a period longer than twenty-four hours. Such orders shall be kept in a "restraint book" maintained for the purpose which shall be open to inspection at any time.

## CHART 2.

For statistical information from sanitariums

#### REST HOMES

(a) *Definition.* For the custodial care of patients with chronic mental illness or defect who are not in need of active medical treatment. Patients may be received:

With or without commitment, on the certification of a duly licensed physician having professional knowledge of the case that the defect or illness is of a chronic nature and there is no need for active therapy.

The Department of Public Welfare will exercise the right to investigate the mental condition of all patients in rest homes from time to time and will order their discharge when in its opinion this step is indicated.

(b) *Condition for Licensure:* In granting a license attention will be paid to the adequacy of:

1. *Physical Plant:*

(1) Buildings—floor space; furnishings; state of repair.

(2) Relation to surrounding property—zoning ordinances, etc.

(3) Heating and ventilation.

(4) Fire prevention.

(5) Protection of patients from injury—windows, radiators, etc.

(6) Bathing and toilet facilities.

(7) Food preparation and distribution.

(8) Accommodation for personnel.

(9) Occupational and recreational facilities.

##### 2. *Personnel:*

(1) A physician available for call, who shall make visits at regular intervals when he shall see all patients who are not under the care of an attending physician.

(2) A trained nurse in charge of the nursing personnel.

(3) A sufficient number of nurses and attendants.

(4) A sufficient nonmedical personnel.

### 3. Operation:

(1) Adequate records shall be kept.

(2) The Department of Public Welfare shall be notified every three months of the admission, discharge and transfer of patients and be furnished such statistical information as is prescribed by the Department. Deaths and accidents shall be reported to the Department within three days of their occurrence. (Chart 3).

### DEATH OR ACCIDENT

Patient's Name

Date of Admission

Institution

Description and Date of Occurrence

Physician's Diagnosis and Treatment given

Name and Address of Physician Consulted

(3) No mechanical restraint shall be used. Patients needing mechanical restraint shall not be kept in Rest Homes.

(4) Records shall be kept of the physicians visits and observations of patients.

(5) The name of Rest Home shall not include the word "Sanitarium."

### SUMMARY

In view of the chaotic situation among the private sanitariums for nervous and mental patients in the state of Illinois, standards were set up dividing these institutions into two groups:

1. Sanitariums which shall admit all types of mental patients, and which shall maintain a resident physician, graduate nurses, standard equipment, and keep regular medical records.

2. Rest Homes which may not admit patients in need of active therapy but which may house patients who have been shown to be chronically ill.

The cooperation of the physicians of the State of Illinois is urged in the maintenance of these standards.

Psychiatric Institute,  
1853 West Polk Street.

### EXAMINING URINARY SHREDS

Examination of smears made from shreds in the urine, for the determination of the cure of gonorrhea, yields better results than the more common method of using smears from the urethral discharge or prostatic secretion. The gonococci are more free than other confusing bacteria.—Dr. Earl E. Ewert, in *Chicago M. S. Bul.*, Dec. 30, 1933.

## BACTERIOLOGY AND THE PUBLIC HEALTH

FRED O. TONNEY, M.D.,

Director, Technical Service and Research, Board of Health.

CHICAGO

To bacteriology belongs the credit for the conception, creation, and later development of the modern health department. It evolved the nucleus back in the "80's," around which public health services have since been built.

Bacteriology still holds first place, as the "hub to the wheel," of every competent public health organization, not as obviously to the outsider as in the beginning yet even more effectively. It serves all the bureaus, providing accurate data for control purposes, supplying information on correct methods of applying known facts, giving timely advice to the executives, and finally pointing the way to further progress, through public health research.

The reason that the public health laboratories of today have fallen into the background of public appreciation, is that they have been overshadowed, temporarily at least, by the elaborate administrative machinery through which the factual findings of bacteriology and related sciences are being made effective for the common good.

*Historical Background.* The beginnings of bacteriology date back to the discovery by Pasteur in 1870 that childbirth fever is caused by a living germ, a most startling announcement at that time. The young science was further advanced by Pasteur's later studies on rabies, and the success of his preventive treatment for the disease.

Then came the work of Koch on anthrax, a disease of cattle, also due to a germ; and a little later, new cultural methods by Koch and Petri, whereby these minute forms of cellular life could be grown in the laboratory.

The next step was the discovery of the tubercle bacillus by Koch in 1880, and again of the diphtheria bacillus by Klebs and Loeffler in 1882.

However, it was not until 1886 when Von Behring first produced diphtheria antitoxin, that public health laboratories were born. After that they sprang up everywhere throughout the

Read at meeting of Society of Illinois Bacteriologists, January 17, 1936, Chicago, Ill.



world, the forerunners of the modern health department, to examine throat cultures from the children for this new diphtheria germ, and to give out the life-saving antitoxin. At that time diphtheria was one of the big killers of childhood.

The laboratory of the Chicago Health Department was founded in 1894. The one in New York was established a few years earlier. Both began in a small way and grew according to the facilities and support afforded them. I assumed charge of the laboratory in Chicago in 1909, 15 years after its founding by Dr. Adolph Gehrman.

#### FUNCTIONS OF THE PUBLIC HEALTH LABORATORY

The present day functions of the public health laboratory may be conveniently classed as:

1. Routine activities.
2. Public health research.

*Routine Functions:* Under routine activities, we may mention:

a. Medical laboratory diagnosis services, rendered to physicians, hospitals, institutions, and departmental divisions. These constitute perhaps 75% of the specimens examined in most public health laboratories.

b. Services rendered to the control divisions of health departments, as a basis for supervision of public water supplies, milk supplies and foods; for maintaining general sanitation, for curtailing air pollution, and for control of industrial hazards to the workers.

c. Expert testimony in court, demanded from time to time in defense of departmental acts and policies; and

d. Technical advice to the administrative officials, to assure soundness of principle and practicability of proposed procedures and policies depending upon the application of factual findings.

I may well remark at this point, that in the 25 years of my own experience in public health organizations, I have come to feel that one can truly gauge the health accomplishments of political administrations, by the willingness of the chief health executive to seek and accept the advice of his technical staff, *before* deciding upon acts and policies.

Conversely, the grave mistakes in public health conduct, are in the long run to be gauged

by the same criterion. Too often such advice is sought *after*, rather than before it is needed.

*Research Functions:* The field of public health research is a very practical one, concerning itself but little with new scientific facts, but rather with ways and means of applying the already *known* facts to the problems of public health. In a word, the field is "applied science," rather than "pure science."

Let me enumerate some of the items of research which I recall, that have proved their worth here in Chicago, mentioning only an example or two of each group.

*Refinement of the Laboratory Technic:* The most common problem of technic in the public health laboratory is how to examine very many specimens with limited facilities and insufficient technical personnel—in a word, how to make the most of what one has at hand for public health purposes.

To illustrate, I remember back in 1916, typhoid fever was still quite prevalent in Chicago, mostly in the stage of carrier dissemination. We in the laboratory were constantly called upon to examine large groups of food handlers, to detect these carriers.

One day, a young bacteriologist, Dr. S. C. Caldwell, later of the Rockefeller Foundation, and now deceased, came to me in the laboratories. He said, diffidently:

"Doctor, we're having a lot of trouble with these typhoid carrier outbreaks. We don't seem to be able to pick up the carriers on the first round of specimens. But, I think maybe we *can*, if - - -."

I said: "Sit down, Dr. Caldwell. Now, tell me what's on your mind."

"Well," he said, "you know most of the fecal specimens we examine are from down in the lower bowel."

"Yes, I guess that's right."

"But the typhoid organisms we're looking for in these carriers come mostly from high up in the bowel,—they're from the gall bladder in fact, right next to the stomach."

"I begin to see," I said. "You're thinking about using a cathartic perhaps—to collect these specimens, so as to bring down the germs in greater numbers?"

"Yes," he said. "That's it."

"Want to experiment with it?" I asked.

"I certainly do," he said.

So out of that suggestion, came the "Elaterin Catharsis" method of collecting specimens from suspected typhoid carriers.

I was asked about it only last month in New York. It has proved its worth. One can pick

up the typhoid carrier quickly, without examining so many specimens. The report of this work was published in the *Journal of Infectious Diseases*, back in 1916.

May I mention one or two more items, under "refinement of the laboratory technic?"

Take water analysis—how to shorten the six day standard procedure to find out if a water is safe to drink. There have been 10 or 12 publications from the Board of Health Laboratories on this but the gist is, that by a new direct plating technic devised by Mr. R. E. Noble, it is now possible to detect dangerously contaminated drinking water in about 17 to 24 hours. Most of you will realize what that may mean at times to those charged with safeguarding public water supplies.

Still another item of laboratory technic: The problem of how to examine many hundreds of milk samples safely from the standpoint of the technical errors of haste. That problem also was solved, a special technic, adapted to mass analysis, saving the workers' time, without sacrifice of *accuracy*—that paramount consideration of every laboratory.

Of course these findings also have been reported from time to time, and many of the procedures are now incorporated in the "standard methods of bacteriological milk analysis," of the American Public Health Association, as a guide to all public health laboratories.

*Control of Public Water Supplies:* I shall never forget the typhoid fever outbreak of 1923 on the south side of the city, due to contaminated shore water from a leak in the 68th Street water tunnel.

For years, we in the laboratory had noticed that the bacterial findings of the two adjacent intakes in midlake, the E. F. Dunne and 68th Street Cribs, both three miles out and not 100 feet apart—were different! The water from the Dunne Crib was usually of good bacterial quality, but that from the 68th Street Crib was too often contaminated with colon bacilli. We reported these findings regularly, and called attention to the discrepancy, to the fact that *something* must be wrong.

Then came the sudden typhoid fever outbreak of 1923, with 228 cases and 23 deaths, confined strictly to users of the water from this 68th Street tunnel. Those using water from the

Dunne Crib tunnel remained free of the infection. It seemed that this outbreak couldn't possibly have come from the common source of supply of the two crib intakes three miles out in the lake. Therefore, it was concluded that there must be a *break* somewhere along the old 68th Street tunnel.

And that is exactly what it proved to be—a leak at the end of the old water tunnel of the City of Hyde Park, near the shore—built many years before, and later after the town was annexed to Chicago, connected to a new tunnel extending out to the 68th Street Crib.

When this new extension tunnel was completed and ready for connection to the old City of Hyde Park tunnel, a diver had been sent down, he is dead now and I shall leave him nameless, to shut off the old shore intake under the lake, so that thereafter the City water for the South Side would come from the new intake three miles out.

To make a long story short, after the typhoid outbreak of 1923, other divers went down at that point, and soon discovered who was to blame for the typhoid epidemic of 1923. They found the steel bulkhead which was to have sealed off the old intake, still unfastened above the opening to the tunnel, with a pile of bolts and a pair of diver's boots still lying at its base. It had never been properly installed at all! For 25 years, about 10 million gallons per day of more or less polluted shore water had been pouring into the mains through this opening, and thence to the kitchen taps on the south side of the city.

So the typhoid epidemic of 1923, and no telling how many other undetected outbreaks, was due to the negligence of a diver! He knew nothing at all about bacteriology of course. Yet, it was bacteriology that found him out by pointing the way to the discovery of his neglect.

*Control of Milk Supplies:* In the field of milk control, let me cite our early experiments on cattle tuberculosis in 1910, which showed that about 10% of the raw milk then being delivered to consumers in the City contained living bovine tubercle bacilli.

This finding of the bacteriological laboratory, more than anything else, gave the irresistible impetus which brought the passage of a comprehensive pasteurization ordinance, the next year, 1912.



Again, in 1925, another survey of the raw milk being delivered to the pasteurizing plants was made by the bacteriological laboratories, with the finding that, despite the advances in eradication of cattle tuberculosis in the herds of the Chicago Milk Shed, 3.5% of the raw milk was still infected with living bovine tubercle bacilli.

Bovine tuberculosis! *That*, of course, makes us think of little crippled children, such as we may see any day out at the Spaulding School on the west side.

Most of you here tonight know the part played by tuberculosis of cattle, spread through milk, in the crippling of children. Yet, some may not.

So, in a word, "Bone and gland" tuberculosis, chiefly a disease of childhood, is caused principally by the bovine tubercle bacillus. It is responsible for many hunchbacks, "frozen hips," and "locked joints" in children and later on in adults. These sufferers have to lie for months in plaster casts, or hooked up with "extension apparatus" in the hospitals, for any hope of cure.

Again, swollen glands in the neck and under the arms, formerly called "scrofula" are often due to this same germ of cattle tuberculosis, spread to the children through milk.

So the findings of bacteriological research made it possible for a courageous Health Commissioner to succeed in his well-conceived effort to eradicate bovine tuberculosis permanently from the dairy herds supplying the Chicago market. Now, of course, that is an accomplished fact. Yet without the findings of bacteriology, the results might have been different, or at least greatly delayed.

*Control of Foods:* As to the bacteriology of food control, let us take oysters as an example.

In the fall of 1924, Dr. J. C. Geiger, now Health Commissioner of San Francisco, California, then Assistant Health Commissioner of Chicago, called me into his office one morning.

"Tonney," he said, "just look at this! We've six cases of typhoid fever reported here out of a *clear sky*! all among the rich and well-to-do. I'm not quite sure yet, but it looks to me like *oysters*!"

"Oysters!" I said. "You must be crazy!"

But he was right!

And after all the hysterical protest from the eastern producers was over—"Typhoid bacilli couldn't possibly survive more than 5 days at

the outside in oysters, and it took at least 11 days for shipments from the East to reach Chicago," the bacteriological laboratory settled the question.

It was found after careful experiment by Dr. John L. White and others, that typhoid bacilli would survive for as long as 60 days in living oysters, under the ordinary conditions of storage on the market.

Later, a study published by the United States Public Health Service left no doubt that infected oysters had been responsible for this outbreak in Chicago and several other cities of the country, amounting to about 1,500 cases.

*Reduction of Air Pollution:* Just a word about air pollution in the large centers of population. This is not so much a direct problem of bacteriology, as it is of lowered resistance to the bacterial infections, which always rise sharply in the urban districts during the overcast months of the year, when the actinic rays of sunshine are of poor quality or entirely lacking.

More research work has been done in this field by the Board of Health laboratories of Chicago than anywhere else in the world, establishing beyond doubt that smoke, even a little smoke, occludes the solar ultra violet rays of greatest health value, for more than six months' of the year. This fact brings up a public health problem which must soon be faced for what it means in reduced resistance to common bacterial infections of childhood and adult life in the northern cities.

*Current Epidemic Problems:* Every community is visited now and then by unexpected epidemics. Such outbreaks always afford a valuable opportunity for bacteriologic study of the phenomena at work. Usually, in the hysteria of the moment, the value of thorough laboratory studies by an established technical staff is not appreciated by the administrative officials. But later on, the real need of such work always becomes apparent whether or not it has been done.

For example, may I cite the recent amebic dysentery outbreak of 1933 in Chicago?

From a laboratory standpoint one contribution stands out on the laboratory diagnosis of amebiasis, made by the corps of laboratory technicians who bore the brunt of the outbreak. Their findings after two years of study and

evaluation have finally been compiled and published. Of course time only will tell whether these carefully recorded experiences will be of real value in the laboratory diagnosis of amines. Personally, I believe they are.

*The Needs of the Public Health Bacteriological Laboratory:* In conclusion, may I be permitted to state briefly what I consider to be the urgent needs of the public health bacteriological laboratory of today?

Every public health laboratory should have a staff at least 20% in excess of the needs of the routine analytical work, so that at least some *research* can be carried on regularly.

Every public health laboratory should be encouraged to publish its worthwhile research findings, with full protection of authorship to all who contribute essentially to the problem irrespective of rank or title but to *none other*.

The public health laboratories of today are particularly in need of well equipped laboratory buildings. A laboratory is a highly specialized and mechanized institution. It cannot function to best advantage in "make shift" or "made over" quarters. It deserves a special building with "built in" service equipment.

There has to be a maze of pipe lines and mechanical leads from basement to roof, with vacuum, air pressure, steam, gas, water, multiple electric connections, hoods to carry away fumes and heat, a ventilation system 20 to 50% over ordinary requirements, animal quarters maintained without nuisance, incinerators, imperviousness of walls, floors and tables, to reduce the hazards of infection to the workers, and special lighting equipment for microscopes and numerous scientific instruments.

May I repeat: The public health laboratory of today is more in need of adequate working quarters than of anything else, and in particular it needs specially built and centrally located laboratory buildings, in which all the laboratory services maintained by a city, county, or state health department can be centralized for greater economy of operation and better service in the years to come.

In this connection thought should now be given to utilization of federal grants, for constructing and equipping these much needed laboratory buildings essential to the public health development of the future.

## PRINCIPAL RESEARCH PUBLICATIONS

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FRED O. TONNEY, M. D., DIRECTOR  
CHICAGO, ILL.

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## THE NOVOCAINE TREATMENT OF SIMPLE SPRAINS

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There are few disorders belonging to the category of minor surgery which are of so great economic importance as the common sprain; and there are few minor surgical disabilities about which so little is known. For many years we have been wont to define sprain as an injury to the ligaments about a joint in which there is a rupture of varying numbers of the constituent fibers of the ligament with subsequent hemorrhage of greater or lesser degree. Most of us have held the concept that the pain and disability are the result of direct trauma and are proportional to the extent of the hemorrhage and secondary edema about the joint. As a consequence of this hypothesis treatment has been directed at measures which are designed to bring about an absorption of the swelling and to place the torn ligaments at rest until healing has taken place. Toward this end it has been the practice of most surgeons to elevate the affected part and apply ice packs during the acute stage and then to secure immobilization by means of a plaster boot or an adhesive splint. Such therapy involves a period of disability in the average case of sprain of the lower extremity of from 3 to 6 days. When one multiplies these figures by the number of cases of ankle sprain which occur each year an idea of the economic importance of this injury is appreciated.

Dr. Leriche of Lyons, France, the internationally known surgeon who has contributed so much to the field of vascular surgery, in 1932, published an article in "La Presse Medicale" which promises to revolutionize the treatment of sprains. In his article Leriche announces the interesting theory that simple sprains are not due to gross injury of the ligaments but to a distortion of the nervous apparatus with which the articular ligaments are so richly endowed. He calls attention to Rauber's paper in 1865, in which this author demonstrated that there were as many sensory corpuscles in the articular ligaments as in the skin. Leriche maintains that the pain is secondary to the trauma in these sensory organs, the sustained pain and disa-

Read before the Evanston Branch of the Chicago Medical Society, March 5, 1936.

bility resulting from the effusion which is a reflex vasomotor phenomenon.

Prof. Leriche's interest in finding a more tangible explanation of the physiology of sprains resulted from the accidental discovery during several operations in which he exposed joints recently the subjects of typical clinical sprain that no evidence of gross injury to the ligaments could be found. Suspecting that the nervous elements in these structures might be a factor in the pain and swelling occasioned by trauma, he injected novocaine solution into the injured ligaments of several patients presenting with the classical picture of sprained ankle. He states he was surprised to find that effusion was arrested and that in most instances pain was permanently relieved.

As a result of these clinical experiments Leriche and his associates for the past 4 years have treated all uncomplicated sprains by the intraligamentary injection of novocaine. They report that their results have been consistently excellent, the traumatized joints responding quickly to the treatment and often spontaneously on a single injection.

In a recent issue of the "Medical Record" Sperber and Sabatino of New York reported a series of 6 cases of ankle sprains treated by local infiltration with procain hydrochloride in four of which there resulted instantaneous relief from pain, rapid subsidence of edema and no recurrence of symptoms. There was one failure which they attributed to lack of cooperation on the part of the patient and another in which the patient was first seen on the fifth day following injury. No reinjections were necessary in any of the successful cases. Two per cent. procain hydrochloride was used in all of these. The authors ran a parallel series of 6 cases treated by strapping and immobilization and declared that the evidence obtained was overwhelming in favor of the procain treatment.

Careful asepsis and a thorough understanding of the anatomy of the affected joint are the only essentials to safe treatment by this method. The ankle joint is the one most commonly injured because of its complicated movements, nearly all of which are accomplished under the strain of the body weight. A sprained ankle is usually the result of violent inversion of the foot. One or more of the components of the external lateral

ligaments are traumatized, the anterior talofibular and the calcaneofibular being the ones most commonly involved. The lateral ligament is divided into anterior, middle and posterior fasciculi. These are 1. the anterior talofibular ligament which extends from the anterior border of the lateral malleolus to the lateral surface of the neck of the talus; 2. the calcaneofibular ligament which extends obliquely downward and backward from the malleolus to the lateral surface of the calcaneus; and 3. the posterior talofibular ligament which binds the fibula to the talus and is rarely torn. The strong internal lateral (deltoid) ligament is injured less frequently. It is an extensive triangular sheet of ligamentous fibers, inseparable from the joint capsule. The apical extremity of the ligament attaches to the medial malleolus. The lower or basal extremity anteroposteriorly presents an unbroken line of attachment to the navicular, talus, sustentaculum tali and to the plantar calcaneonavicular ("spring") ligament. It is reinforced by the tendons of the tibialis posterior and flexor digitorum longus. Sudden eversion of the foot is more likely to result in abduction fracture of the medial malleolus, the latter being pulled off near the tip due to the failure of the deltoid ligament to give way. Injury to the lateral ligaments is quickly followed by effusion into the neighboring tissues. Ecchymosis indicates rupture of the constituent fibers, a complication which is not seen in the majority of sprains. Unless measures are taken to restrict its progress, the swelling may attain considerable proportions in a very short time. In very severe sprains the synovial membrane of the joint may be torn with resultant effusion into the joint itself.

In any injury about the ankle joint the possibility of fracture of the malleoli should be considered and all doubtful cases subjected to x-ray study. Fracture of the external malleolus is produced by the same mechanism as sprain of the external lateral ligament; where inversion accompanies extreme violence the ligament may hold and the malleolus be pulled off.

Fracture of the base of the 5th metatarsal, owing to the insertion of the peroneus longus tendon at this point, is a not infrequent complication of inversion sprains.

Injuries to the ligaments of the knee joint



TABLE 1

Case No.	Diagnosis	Age	Interval Before Treatment	Symptoms	Findings	Treatment	Result
1.	Sprain ext. lat. lig. of ankle.	19	1 hr.	Pain; unable to walk.	Sl. swelling, Ecchymosis, marked tenderness over ext. malleolus.	10 c.c. 1% procain injected.	No improvement; X-ray next day fracture ext. malleolus.
2.	Sprain ant. div. ext. lat. lig. ankle.	43	6 hrs.	Pain; partial disability.	Tenderness (diffuse) over ant. region ankle—lat. side.	8 c.c. 1% procain with adrenalin injected.	Relief for 4 hours; partial return of pain; very nervous.
3.	Sprain ext. lat. lig. of ankle.	30	12 hrs.	Pain; partial disability.	Mod. swelling; marked tenderness over ext. lat. lig.	10 c.c. 1% procain injected.	Complete relief from pain; sl. limp for 1 week.
4.	Sprain ext. lat. lig. of ankle.	28	24 hrs.	Pain; unable to walk.	Marked swelling; tenderness marked over ext. lat. lig.	10 c.c. 1% procain injected.	Walked out of clinic; no pain for 6 hours, then return of pain. Refused 2nd inj.
5.	Sprain ext. lat. lig. of ankle.	35	24 hrs.	Pain; partial disability.	Mod. swelling; tenderness over ant. div. ext. lat. lig.	6 c.c. 1% procain injected.	Relief from pain for 6 hrs.; partial return but less severe.
6.	Sprain int. lat. lig. of ankle.	18	18 hrs.	Pain; partial disability.	Sl. swelling; tenderness over int. lat. lig.	4 c.c. 1% procain injected.	Sl. return of pain next day; able to resume work.
7.	Sprain dorsal carpal lig. of wrist.	23	48 hrs. Indefinite	Pain in wrist; worse on dorsiflexion.	Sl. swelling.	2 c.c. 1% procain injected.	Relief 6-8 hours; pain next day of different character.
8.	Sprain ext. lat. lig. of ankle.	9	4 hrs.	Pain; unable to walk.	Sl. swelling; tenderness over ext. lat. lig.	4 c.c. 1% procain injected.	Complete relief; no swelling next day.
9.	Sprain ext. lat. lig. of ankle.	38	26 hrs.	Pain; partial disability.	Marked swelling; tenderness over ext. lat. lig.	8 c.c. 1% procain inj.; inj. repeated using 4 c.c. 2% sol. next day.	Marked relief; sl. return pain next day; second inj. complete relief.
10.	Sprain metacarpal - phalangeal joint.	37	8 hrs.	Pain on motion of joint.	Sl. swelling; tenderness over joint.	2 c.c. 1% procain injected.	Procain reaction; partial relief from pain; less disability.
11.	Sprain ext. lat. lig. of ankle.	32	6 hrs.	Pain; unable to walk.	Marked swelling; ecchymosis; tenderness over ext. lat. lig.	6 c.c. 2% procain injected.	Walked on ankle without pain for 6 hours, then slight return; much improved next day but marked swelling prevented walking.
12.	Sprain ext. lat. lig. of ankle.	24	4 hrs.	Pain; partial disability.	Marked swelling; tenderness over ext. lat. lig.	4 c.c. 2% procain injected.	Complete relief.

TABLE 2

Total Cases Analyzed	Complete and Permanent Relief	Partial Relief	Failures
12	4	6	2

are next in importance from the standpoint of disability. Here the internal lateral ligament is most often affected. Forceful abduction of the leg on the femur is responsible for these sprains. Injury to the external lateral ligament is rare. Sprain of one, or both, cruciate ligaments may result from any violent injury to the knee joint.

The internal lateral (tibial collateral) ligament is a broad band attaching proximally to the medial condyle of the femur and distally to the peripheral border of the corresponding meniscus and the medial border of the shaft of the tibia behind the semitendinosus tendon. Sprain of this ligament is usually accompanied by localized swelling and tenderness at its upper

or lower attachment. Pain and tenderness in the middle of the ligament suggests injury to the semilunar cartilage. Complete rupture of the internal lateral ligament is followed by effusion into the knee joint with the attendant phenomenon of "floating patella."

The external lateral (fibular collateral) ligament is a rounded band attaching proximally to the epicondyle of the femur and crossing to the lateral aspect of the joint to attach distally to the head of the fibula. Again, as in the case of sprain of the internal lateral ligament injury is suspected when there is point tenderness over either attachment.

As the cruciate ligaments are seldom involved in simple sprains, they hardly deserve consideration here.

Sprains of the hip and shoulder joints are

seldom seen. Most injuries of the shoulder joint diagnosed as sprain are in reality partial tear of the supraspinatus tendon. True sprain of the wrist joint is likewise rarely encountered. Injury to the metatarsal-phalangeal and interphalangeal joints are quite common but cause little disability.

Before discussing the technic of the novocaine treatment, it should be emphasized that only simple sprains are suitable for such therapy. Joint sprains obviously are beyond its scope. In my experience those joint injuries in which there is associated ecchymosis respond poorly to injections. The best results are seen in recent sprains although Leriche claims success with its use in certain instances of chronic sprain.

The technic of injection is simple. The skin is carefully aseptitized over the injured ligament. A one inch 27 gauge needle is used. Larger needles will cause more trauma to the tissues invaded and this is undoubtedly a factor in producing the discomfort which the patient sometimes describes as a pain which is different from that which he experienced before injection. Either 1% or 2% procain hydrochloride, or any of its derivatives, may be used. For the more diffuse sprains where a comparatively large injection is required the weaker solution is perhaps best. A small injection of the more concentrated solution is advocated for the more localized injuries. The injection site for the skin is chosen over the area of maximum tenderness; a skin wheal is raised and the needle inserted perpendicular to the skin, injection being carried ahead of the needle as it is advanced to the ligament. Attempt is then made to inject the ligament itself, care being taken not to enter the joint. A sense of increased resistance is noted when contact is made with the ligament. Injection of the injured ligament usually occasions some pain. From 2 to 10 c.c. of anesthetic agent will suffice for most sprains, the amount depending upon the extent of the injury. Leriche has injected from 20 to 30 c.c. of 1% solution in certain instances. One needle puncture should suffice and the wound made should be covered with a sterile gauze dressing.

As an important adjunct to the injection treatment a valgus, or varus, pad is placed in the

heel of the shoe to relax the traumatized ligament.

The series of cases which I wish to present, while not large, is, I believe, fairly representative of the efficacy of this form of treatment for simple sprains. Tables 1 and 2.

In conclusion it again should be emphasized that this form of treatment is suitable only for simple sprains. Joint sprains and sprains associated with considerable ecchymosis contraindicate its use. This form of therapy is not suggested as a "cure-all" but is, I believe, worthy of thoughtful consideration.

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## INJURIES OF THE KIDNEY

With Remarks on the Effects of Trauma in General on Urinary Infection and Stone Formation

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*Renal Injuries.* The relative infrequency of kidney injury is undoubtedly due to the renal mobility and to its well protected location in the retroperitoneal position. In an active hospital experience of fifteen years we have tabulated only thirty-nine instances of gross clinical renal injury from external violence; this in hospitals caring for many industrial accident patients and situated in metropolitan areas where unfortunately many automobile accidents occur. Renal injuries associated with more or less extensive involvement of other internal organs are not included in this report. All of these patients died of shock and other complications and did not present the urological problem of renal injury.

*Etiology.* Küster in 1896 first reported an experimental and clinical study of the mechanism of ruptured kidney by external violence. The kidney acts as a ball of fluid and the impact is transmitted in all directions. The traumatic force is conveyed (a) either from the front, side or from behind as in a direct blow, fall or a crushing force; such force may operate directly through the abdominal wall or cause the kidney to be forced against the lower ribs or against

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the resistant spinous processes. This was the more common type of injury in our experience. Injury of the kidney may also occur by (b) indirect force after falls on the buttocks or feet and in these instances was probably associated with sudden contraction of the abdominal muscles. Four of our patients suffered this type of injury. Injury by (c) muscular action alone is attributed to sudden contraction of the diaphragm or of the abdominal muscles as in lifting a heavy weight or in abrupt flexion of the body. None of our patients complied with this supposed etiology.

It is well known that a pathologic kidney is more susceptible to injury by external force than is a normal kidney. This is illustrated in our series in that four of these kidneys were markedly hydronephrotic, two contained large calculi and one was the seat of an advanced hypernephroma. Fifteen of these patients suffered industrial accidents, and falls of some sort accounted for the injury in every one of these instances. Falling into excavations, from railway cars, across or from scaffolding, over fences, etc., are all listed as direct causes. Two patients suffered the injury by falling upon the edge of metal buckets. Five patients were injured in play at sports; four in football games and one at baseball (i.e., sliding for base). Fifteen were injured in automobile accidents, four of which were of a crushing nature (i.e., two were caught between moving cars and two between the car and a wall). Two patients were partially crushed between railway cars. Two penetrations from gun shot wounds are included.

Fracture of one or more ribs occurred in six patients and arm or leg fractures in five. In none of our cases was there a fracture of the spine or of the pelvis.

All cases of renal injury bear careful watching to determine the type and extent of injury and the well considered decision as to whether treatment should be conservative and expectant or immediate operative intervention. In this regard it should be emphasized that the extent of the external injury in no way determines the severity of kidney damage. Hematuria is the prominent symptom of renal injury. It occurred in thirty-seven of our cases. In the other two included in this report a sizable perirenal hematoma developed without gross hematuria at

any time. The duration of hematuria varied from three to nineteen days. Pain in the loin and back was present in all cases, varying from a mild ache to intense pain and requiring repeated sedatives. Here again, in our experience, pain was not an important criterion as to the extent of renal damage or of the degree of hemorrhage. Shock, as evidenced by the general appearance and condition of the patient with emphasis on the blood pressure level (especially the pulse pressure), gives the important immediate clinical picture. If severe hematuria continues, repeated blood counts indicate the degree of secondary anemia. An increasingly palpable tumor in the loin may indicate continued perirenal bleeding but even in the presence of continued hemorrhage and an increasing anemia we maintain a conservative attitude on treatment unless the blood pressure cannot be adequately maintained and unless the appearance of the patient seems to call for emergency measures to stop severe hemorrhage.

In the borderline cases intravenous urography furnishes us with most important information. This aid was first emphasized by McKenna and later by Mark. Extrarenal extravasation of the dye tells us immediately as to whether we are dealing with an injury in which the pelvis and calices have been ruptured or whether the tear is extra- or intracapsular in type. Where extrarenal extravasation is demonstrable, if the patient's general condition is immediately satisfactory, conservative and supportive treatment is indicated with the knowledge that a later drainage of the loin must be done but at a time when the patient is in a condition to better stand the procedure. When the patient's condition is critical, immediate exploration of the flank is indicated. Four of our patients were operated upon as an emergency procedure; one patient died from hemorrhage due to pulpification of the kidney and a tear directly across the renal pedicle. Two were nephrectomized and one drained and packed. Five of our patients were operated upon by us from five days to four weeks after injury. In one (a hydronephrotic kidney) nephrectomy was performed; in four incision and drainage sufficed. None of these patients died. One had a urinary fistula which persisted for eleven weeks and was nephrectomized elsewhere two years later. The patient with an ex-

tensive hypernephroma (so diagnosed by us) was refused operation twelve weeks after injury although he had apparently recovered from the direct effects of the injury. He was operated upon elsewhere and died on the operating table from uncontrollable hemorrhage.

Our experience coincides with those who advocate careful conservative treatment in most cases of renal injury. The rare extensive lesion calls for immediate surgery and the indications are clear. Continued shock, narrowing pulse pressure, signs of continued internal or urinary hemorrhage of a severe degree which do not respond to intravenous glucose and saline infusions or blood transfusion and supported by excretory urographic evidence of extensive injury constitute the indications for operative intervention. In the real emergency one must not even delay for roentgenographic findings. But in the main, careful consideration with adequate supportive treatment will be rewarded by the survival of the patient.

We feel that it is most important to keep these patients at complete rest in bed for at least two weeks after the cessation of hematuria. Two of our patients who could not be so controlled had a recurrence of massive bleeding eight and twelve days respectively after their departure from the hospital. In one of these patients operative intervention was considered on the second admission but both recovered on conservative treatment after spending an additional three weeks at rest.

Rolnick reports a case where an emergency nephrectomy was performed to save the life of a patient injured five weeks before and where a transient hematuria had been present for only twenty-four hours at the time of the original injury. He explains this unusual ease by stating that at the time of injury there was only a slight subcapsular tear. Continued activity for the next five weeks together with automobile riding and carrying a heavy sample case completed the renal tear and brought about the severe later hemorrhage.

Of the twenty-nine cases treated conservatively throughout, none died and we have no record that their condition necessitated subsequent treatment elsewhere. This latter, however, is no proof that they may not develop obstructive pathology as a result of constricting

bands or adhesions at a later date. We have removed four very large hydronephrotic kidneys where there was a prior history of renal injury with hematuria many years before we saw them. Whether the hydronephrosis existed prior to the injury or developed as a result of it we could not ascertain from a study of the specimens removed.

Before leaving this subject we wish to emphasize another consideration of "ruptured kidney." Lawyers for the plaintiff in personal injury suits have recently discovered that many clients suffered supposed renal injury and that this claim is like that of unexplainable backache in that it is hard to convince a jury that injury has not occurred, even in the presence of completely normal urologic findings. Our medical brethren, in sympathy with and in support of the supposedly injured client, have not been adverse to depicting before the jury a normal renal calyx outline as the area of prior rupture. We emphasize this new interest in renal injury so that in fairness to all concerned the examining surgeon may note carefully the character of the urine and associated findings during the early observation of these injured patients. These notations might clarify the validity of these claims when the matter becomes a medicolegal one many weeks later.

*Traumatic Dislocation of the Kidney.* During the past fifteen years we have studied more than 200 patients with movable kidney by modern urologic methods. The histories, clinical findings and roentgenologic data in forty-two of these patients indicated the advisability of surgical intervention for fixation of the kidney and freeing of the ureter. Twelve of these patients dated the onset and course of their trouble so intimately with mechanical injury and the operative findings so closely tallied with this supposition that we have classed them as traumatic in origin. We cannot, of course, overlook the fact that in these individuals there were undoubtedly predisposing factors which made traumatic dislocation of the kidney possible.

This traumatic loosening of the kidney may be due to a slow gradual loosening of its attachments, but is more often caused by a sudden rupture of its fascial and peritoneal coverings. Small areas of perirenal and peri-ureteral hemorrhage occur and the resultant organiza-



tion about these areas may result in sclerotic attachments which compress or angulate the ureter or renal pelvis. If low grade infection supervenes in these areas of extravasation, the subsequent density of these cicatrices will be increased and there will be a gradual compression of kidney, renal pelvis or ureter. If the kidney is not displaced and the trauma affects only the perirenal tissue, a subsequent perirenal sclerosis may result. We have reported four such cases relieved by operative removal of this fibrolipomatous encasement about the kidney. In three of these there was a definite history of renal trauma several years before the onset of symptoms.

Following this type of renal trauma the pain and urinary stasis which results is not so much the result of abnormal renal mobility alone as from the fact that the ureter becomes adherent to the posterior peritoneum and angulation and rotation occur because of the ureteral wall fixation. This fact makes it imperative that the kidney, renal pelvis and ureter be thoroughly freed from all abnormal surrounding attachments before nephropexy is accomplished.

In the case of the ureter it should be freed down to the level of the bifurcation of the iliac vessels as we have most often found the areas of fixation to be between the middle third of the ureter and the posterior peritoneum. We do not wish to foster an undue enthusiasm for the operation of kidney fixation as it has been an unwarranted procedure in many patients in the past. The operation, however, has definite indications in carefully studied and properly selected cases. In 1928 we reported for the first time a roentgenographic follow-up on twenty-two of these patients all of whom had been operated upon from four to eight years previously. All were symptom-free and the emptying time of the renal pelvis had returned to normal. We firmly believe that trauma plays an important part in renal dysfunction in this type of case, not so much in the degree of renal displacement as in the extent of peri-ureteral and peripelvic sclerosis which, together with the renal ptosis, causes obstruction of the free outflow of urine.

*Effect on Urinary Tract of Trauma, such as Fractures and Spinal Injury.* In fracture or injury of the spine with resultant bladder paralysis, it is well known the rapidity with

which urinary infection sets in, especially after repeated catheterization. It should be further emphasized that in all these patients an alkaline lime splitting infection rapidly produces concretions or stones in the renal pelvis and bladder. We will not take up the discussion of the proper method of handling the bladder in these patients except to state that after attempting; 1. interval catheterization, 2. indwelling urethral catheter, 3. leaving them alone to the development of a paradoxical incontinence, we have finally experienced better results with 4. immediate suprapubic cystostomy.

For many years we have noted the frequency with which patients recovering from a prolonged immobilization in the treatment of fractures or osteomyelitis tend to develop pyelitis, cystitis and renal stone formation. In the light of our present knowledge we now consider these complications to be due to a disturbed calcium metabolism associated with a chronically alkaline urine favoring the development of phosphatic stones. Unfortunately, we did not keep record of our earlier cases of stone formation associated with fractures. But during the past five years we have tabulated nineteen patients in whom stone formation appeared after or during the healing period associated with fractures other than those of the spine. In every one the routine urinalyses showed these patients to have an alkaline urine. None of these individuals had had previous symptoms suggestive of renal stone and in ten the renal regions were included in prior x-rays and showed no shadows suggestive of stone.

In the light of these observations we suggest that these patients be placed upon a high vitamin A-acid ash diet during their convalescence from fracture or osteomyelitis. If the urine does not remain distinctly acid during this time, acidulating drugs should be added so that the hydrogen ion concentration is maintained below 5.2, as it has been definitely shown that this type of stone will not form at this point of urine acidulation. Cod liver oil, haliver oil and fresh yeast are added to diet to avoid deficiency in vitamin A consumption and to prevent the hyalinization of the renal pelvis which has been shown to occur in these cases.

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## FACTORS INVOLVED IN GENERAL SURGERY

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Correctly made clinical diagnosis is today—and always will be—preeminent in medicine. However, to make a correct clinical diagnosis is not sufficient in the handling of major surgical cases. The surgeon should be acute at making a resume of the most important factors likely to influence his procedure at any time during the operation.

Some of the most important factors involved as such are:

1. *The time element.* When to operate is influenced by too many factors to enumerate. Some men say operate if indicated when the diagnosis is made. At times, however, it is impossible to make a diagnosis as illustrated by one of the cases presented.

It is not only important in major surgery to know when to interfere with a pathological process, but it is also of value many times to recognize the point in the time element at which one should slow down or speed up some manipulation of value to the welfare of the patient.

2. *Reserve of the Patient.* The reserve of the patient is always to be considered when a major surgical procedure is contemplated.

3. *External Conditions.* External conditions influencing the surgical problem to be undertaken, namely, hospital operating room facilities, help in the way of interne assistance, quality and quantity of instruments and suture material involved.

4. *Actual procedure* of the operation before the operation or postoperatively. Under this category should be included the type of incision, large or small, etc.

Experience is a wonderful teacher if not too expensive. The following cases illustrate the above discussion. Although I proceeded, as I thought, thoroughly and cautiously in these cases, as shown by the consultation, which was mostly at my own request, at times I fell far short of my mark and feel that a review of the salient points of these case histories will aid me in future situations of similar nature and perhaps would be of interest to some one else.

Case 1. O. D., white, male, aged 19 years. While skating in 1922 was struck in the chest by the head of a fellow skater, following which he developed a cough

and his doctor found the tuberculosis germ in his sputum many times. After a prolonged course of bed rest both in Evanston and Denver with numerous hemorrhages by mouth he had produced an artificial pneumothorax. Some three years after being gassed and five years after the onset of his infection he returned to Evanston cured of his tuberculosis. February 14, 1927, at the time of a rather heated argument over the election of his sister to an office in the Sunday School he suffered a severe hemorrhage by mouth. The patient was taken home in an ambulance and because Dr E. A. Gray of Chicago had been his doctor, consultation was sought, and on his advice the patient was placed under the full physiological effect of codeine and atropine sulphate. The temperature at this time was 100.6°F., and the pulse 140. The patient did well for two weeks when a second severe hemorrhage occurred. Ten days later a third severe hemorrhage was experienced. At this time I began to realize my diagnosis was wrong; that instead of dealing with a pulmonary hemorrhage in a collapsed lung due to tuberculosis, I had a patient with a pulmonary hemorrhage traumatic in origin in a collapsed lung. Five weeks after the hemorrhage in church the boy had a terrific splurge by mouth at 8:00 A. M., and again at 10:00 A. M. I then decided on a radical change in diagnosis from pulmonary hemorrhage in a collapsed lung due to tuberculosis to one of pulmonary hemorrhage due to trauma in a collapsed lung. The traumatic factor being accounted for by the emotional rise in blood pressure at the time of his argument in church.

His blood was then grouped (group 4) and his coagulation test taken (9½ minutes). At 2:00 P. M. following the third severe hemorrhage by mouth, on one day, he was given 100 CC of whole blood (taken from his mother) into the abdominal wall, hemostatic serum into the buttocks and Fibrogen (Merrill & Co.) by mouth. The following day he was given the second 100 CC of blood from his mother into the abdominal wall. No more hemorrhage was encountered. It is now eight and one-half years since the boy had his hemorrhage in 1927; he is going to school, and at no time has he shown a return of the tuberculosis. Serious hemorrhage such as this boy had, is a major problem and I feel that the correct clinical diagnosis here was what made the proper treatment possible.

Case 2. Miss A. S., white, aged 22 years. January 28, 1935, onset of illness with vomiting and pain in the abdomen generalized at first and finally localizing in the right lower quadrant. The pain was severe enough to cause her to seek the doctor the following morning at 10:00 A. M. The patient was sent to St. Francis hospital, Evanston, direct from the doctor's office and one and one-half hours later a gangrenous appendix verified by the pathologist was removed from the abdomen. The time element was a vital factor here—a delay of one or two hours in allowing the patient to return home for clothes, etc., could easily have meant more serious consequences.

Case 3. Mrs. A. W., white, aged 35 years. I was called to see this lady for the first time, February 15, 1930, at 10:00 A. M. Her story was that about one-



half hour before my arrival, while at stool, she had suffered a severe abdominal cramp that caused her to double up. Abdominal pain had been present since its onset, accompanied by a feeling of faintness. The past history was negative, other than that she was the mother of two children, aged nine and eleven; she was fourteen days past her period; and that the day previous she had taken, by mouth, fourteen grains of quinine sulphate, in divided doses, to aid her in bringing about her menstruation. Examination showed a frail female with some hyperstalsis in the abdomen by stethoscope, a rapid pulse, and a doughy feel to the muscular wall of the abdomen. The patient was put to bed with head lowered and an ice bag to the abdomen. I was called back to the residence one hour later because the patient was much worse (collapse). She was then ordered to the Evanston hospital and consultation sought and had with Dr. W. C. Danforth of Evanston. The question of ectopic pregnancy was discussed at this time. The patient was transfused at 4:00 P. M. and operated on for ectopic pregnancy at 7:00 P. M., February 15, 1930, by Dr. Danforth. I again transfused her and used artificial respiration because of severe shock on the operating table. Recovery was very satisfactory until February 18, 1930, when she developed pneumonia and died. The time element was the deciding factor in this case. Although nine hours elapsed from the time I first saw the patient to the time of her operation, not an unusually long time, the best I could give was not good enough. I believe the result would have been entirely different had I made a diagnosis immediately upon seeing this patient.

Case 4. Mr. C. C., white, aged 39 years. Ill with pain in the abdomen, vomiting and obstipation, progressed with abdominal distention for two and one-half days, when I was called due to the absence of his physician from the city. A diagnosis was made of intestinal obstruction, cause unknown, in consultation with Dr. Carl B. Davis of Chicago. Operation at the Evanston Hospital January 1, 1928, with relief of the obstruction in the small bowel (kink), due to an adhesion from the appendix. Following the operation a yellow discharge began from the wound and a stormy convalescence of three months, ended in complete recovery. Certainly the time element was an enormous factor in this case.

Case 5. Mrs. I. R., white, aged 38 years. History of a full term pregnancy with successful delivery sixteen years previous. Just previous to her present pregnancy she had had a full term pregnancy; however, six weeks prior to term she had had intermittent labor pains at intervals of a week. The pains were typical labor pains. She had been delivered at home of a full term perfectly formed dead baby by a doctor who had since died. No records, information or history, other than that given, were available. She was assured she would receive careful attention and was examined every two weeks, or oftener, during her pregnancy. At seven and one-half months she began the same clinical course; she would have labor pains of a considerable degree of severity, lasting from three to six hours and then they would subside only to recur again in three days to one

week's time. The subject was discussed with the husband and patient, and upon my advice consultation was sought with Dr. Danforth as a precautionary measure. After due deliberation of the fact that now was the time to decide what should be done to assure the patient a successful termination of her case, we elected to let her go to term. The day before the date for her delivery, her pains began as usual, but instead of the usual subsiding of the pains, they continued from 6:00 P. M., April 12, to 9:00 A. M., April 13, when she delivered a perfectly formed dead baby. Examination of the placenta showed a marked grade of fibrosis.

The time element was the deciding factor in this case. A clinical diagnosis here was impossible, one could have made an assumption that later would have proven correct. Fortunately, cases of this type, where a diagnosis is impossible, are rare.

Case 6. Mrs. K. D., white, aged 45 years. History of having had a Cesarean section in London, England, thirteen years previously, and ever since, following a prolonged convalescence due to a wound infection, she menstruated through the abdominal wall. This condition had continued up to the past three months when she lost 25 pounds in weight and had noticed two or three lumps the size of marbles, that had seemed to increase in size, appear in the margins of the wound.

Hysterectomy was advised, with removal of the old operation scar. The patient was operated upon at St. Francis Hospital, Evanston, January 19, 1931. On opening the abdomen, I found the bowel adhered to the uterus in three places. On dissection I ruptured into the bowel, which I repaired. I then found the bladder was adhered to the uterus like an umbrella, covering the entire dome of the organ, and on dissection I ruptured into the bladder. To "clear the decks," so to speak, for a hysterectomy, consumed two hours and ten minutes. I then realized that I must hurry the remaining procedure decidedly, which I did, and my patient returned to bed in mild shock. Convalescence was uneventful, and the patient left the hospital in 28 days (February 19, 1931), with complete recovery.

I feel definitely that the speeding up of my operative technique in the latter part of this operation was the deciding factor as to success or failure. It seems to me that here the time element in surgery entered in just a little different light than previously mentioned, in that it was the speeding up of the time element that accomplished the result.

#### EXTERNAL CONDITIONS INFLUENCING THE SURGEON

Case 7. It is not impossible, even today, to find oneself in a situation where external factors such as operating facilities, interne help, etc., influence the surgeon. Baby "J," colored, age 5 years, referred by Dr. H. O. Lussy, Evanston, February 17, 1927, was seen at home at 10:00 P. M. Examination showed a normal, healthy colored child with pain without motion in the right hip region. Normal temperature and normal pulse rate. The treatment given was an ice bag to the abdomen and observation. The next day at 8:00 A. M., the pulse rate was 100 and the temperature 100°F. with rigidity and tenderness of the right lower quadrant. Operation

was successfully done for removal of an acute appendix at the Butler Colored Sanitarium, Evanston, where the lights, instruments, help and suture material could have been improved upon.

#### RESERVE OF THE PATIENT

Case 8. Mrs. H. A., white, aged 66 years. Illness began with pain in the upper abdomen with rigidity and tenderness of the same. The lady was extremely ill. A diagnosis of acute cholecystitis with cholelithiasis was made in consultation with Dr. Danforth and drainage of the gall bladder advised, which he did, and I assisted. (January 4, 1930). Many stones were found. The condition of the patient on the table was very poor although she had appeared exceptionally well previous to her present illness. Operation began at 4:25 P. M. with the patient's blood pressure 100 S., 60 D. At 4:45 P. M., blood pressure was 54/40 and at 4:50 was 68/38. The operation was completed at 5:10 P. M. with blood pressure 80/40. This patient had just about all her reserve would stand. Recovery as far as the gall bladder operation was concerned, was complete. Patient died some three years later from heart disease.

*Operative Procedure.* Small maneuvers at operation sometimes aid one in securing good results.

Case 9. Mr. P. L., white, aged 25 years. Onset of pain in the abdomen Monday, December 27, 1927, at 7:00 A. M. I saw the patient for the first time, thirty hours later (December 28), and operated upon him one hour after my initial call, at the Evanston hospital, diagnosis acute appendicitis. A large abdominal incision was made and a completely gangrenous appendix removed without rupturing it. The pathologist's report at the hospital reads: "The entire wall of the appendix is necrotic with bloody fluid in the lumen." The patient was discharged from the hospital January 17, 1928. I feel the rapid recovery was due to the large abdominal incision which made it possible to operate on this patient without rupturing the appendix.

#### CONCLUSIONS

1. Several factors involved in major surgery are illustrated by the clinical cases cited.

2. Well kept case histories, so that the surgeon can review the salient points of experience, are of value.

636 Church Street.

#### THE ORPHANAGE

ARTHUR S. SANDLER, M. D.  
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The modern infant welfare movement is the product of twentieth century enlightenment. It is the cumulative result of years of effort, and in our enthusiasm over present success, we must give credit to the early workers in the field.

Orphan houses are mentioned for the first time

in the laws of the Emperor Justinian (483-565 B. C.). But in 105 A. D. Pliny relates that he cared for and educated five thousand free born orphaned children. At the court of Byzantium, the office of Inspector of Orphans, was so honorable, that it was held for the brother of the Emperor Michael IV, in the eleventh century.<sup>1</sup>

The first foundling hospital was established by Datheus, Archbishop of Milan. This was followed by a number of institutions on the continent. But they soon reached a period of stagnation and earned a reputation far different from that for which they were originally intended. Founded as a means of relieving the wants and sufferings of exposed and helpless infants, they became institutions for relieving parents of the burden of their children. They can be interpreted as a defense reaction of the middle ages to the inability or unwillingness of the people to cope with the care of the infant. Thus, these institutions reached a state which was far from beneficial, and which continued without any effort toward improvement. The reason there were no feelings of resentment toward these institutions, can be attributed to the fact that the life of the child was not considered worth preservation.

This is "the dawn of infant welfare." The dark ages, as far as infants were concerned, continued until the middle of the 16th century. The modern period of child welfare began with the founding in France in the year 1633, by St. Vincent De Paul, of the Sisters of Charity,<sup>2</sup> which has since devoted its main energies to the care of needy and unfortunate children. The little known orphanage of the Spanish and Portuguese Jews was established in Amsterdam in 1648.<sup>3</sup> The first modern orphanage was established by August Hermann Francke in Germany in 1695. We may say that organized institutional care dates from the middle of the 17th century.

Our interest is in the development of child-care in our own country beginning with colonial times.

Placing-out in our own land began in 1619 when the Mayor of London sent one hundred children to the Virginia County to be placed with honest good masters.<sup>4</sup> The crude and semi-barbarous character of the placing-out of those days is well known.

Institutional care in our country dates back

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only 200 years when the Ursuline Convent in New Orleans made provisions to shelter children orphaned through the Indian massacres. Ten years later Rev. George Whitefield founded the Bethesda Orphan House at Savannah, Georgia, as a school for needy boys.<sup>5</sup> These and other earlier children's institutions were founded primarily to provide religious training and educational advantages not otherwise available. The fate of the children taken under their kindly charge was in marked contrast with that of the mass of dependent children for whom the usual provision was the public poorhouse where they were "incarcerated" without segregation from the older unfortunates.

Up to the beginning of the nineteenth century the prevailing method in this country of dealing with orphans and the children of shiftless, poverty-stricken, deserting, sick or unworthy parents, whose relatives were either unwilling or unable to care for them, was to turn them over to the custodial care of poorhouses, poor farms, or similar places of incarceration. As public institutions these so-called homes for the poor were administered by officials appointed for political reasons. For the most part, they were lacking in the qualifications necessary for adequate service to their poor charges, and their principal claim for a continuance in office was based upon a record of economical management. The evil conditions resulting from this method of child-caring grew to such proportions as to induce high-minded citizens to establish private orphanages and homes for children as a means of providing for them in a more humane way. It required thirty years to create the interest necessary to produce a response commensurate with the needs of the work. Opposition to the old system grew and developed a public opinion which during the later part of the century forced the passage in many States of laws prohibiting the commitment of children to poorhouses or similar institutions. Thereafter public institutions entered the field to share the task of child-caring with those maintained by private agencies.

The earliest reaction to callous care of children in the United States was against the almshouses, and an agitation began to place as many children as possible in private institutions.

Massachusetts was the first State to rescue its dependent children from almshouse influences.

In 1866, it established the first State institution for destitute children in the United States.<sup>6</sup>

The greatest growth of institutional care in the United States was during 1890-1903. This period coincides with the beginning of the greatest influx of immigration to our shores. During those years alone over 400 orphanages were established.

The State of Illinois has 89 certified orphanages<sup>7</sup> and our City of Chicago has 42,<sup>8</sup> of which the first one was established in 1847 and called the Chicago Orphan Asylum.<sup>9</sup>

Only twenty years ago Mrs. Reiger and some twenty-five of her friends opened the first Infant Home and Day Nursery of the Daughters of Zion. They recognized the dire necessity of a place for the care of Jewish Orphans. Since then we have grown rapidly until 1918 a State Charter was granted. The membership of twenty-five increased to four thousand members and have cared for twenty-one thousand one day service in the last year. In 1929 this beautiful home was dedicated.

The need for such an institution was shown when demands upon it after epidemics came more quickly than could be met. Children were turned away by the hundreds for lack of accommodations.

Under the able supervision of our superintendent, Mrs. Kahn, and her assistants our babies received excellent care.

Each child is under constant medical and dental supervision. Records are kept to chart, physical examination, immunizations given, tests made, diseases contracted, formulas prescribed, medication and treatment given. Isolation on all contagious diseases are enforced as per rules of Health Department.

In closing I want to give due credit to the founders of this institution. When such able women as the Daughters of Zion combine their efforts with that of the medical profession in so noble a work there are no heights they can not obtain. During the able regime of our long time president, Mrs. Reiger, and her most able successor, Mrs. Romberg, this institution has had recognition and phenomenal success.

Friends, this is a wonderful mission. The care of the child is the most interesting and the most fascinating part of medicine. Its history reads like a page from a fairy tale. Its possibilities are

unlimited and when lay organizations as represented by you ladies here tonight, combine their efforts and those of a willing medical profession, there is no limit to the good we can do.

The day for the child is come. The work will go on and we will develop a better child physically, mentally and morally.

2700 Devon Avenue.

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### THE ROLE OF SPLANCHOPERIPHERAL BALANCE IN ETIOLOGY OF DIARRHEA

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The comparatively great number of synonyms for summer diarrhea of infants, speaks for itself. We still are doubtful of the cause of this illness. The symptomatology and spread of the diarrhea have always led to the suspicion of some microorganism as a causative agent.

Booker<sup>1</sup>, in his studies of intestinal flora in summer diarrhea, noticed a general increase in the number of certain organisms, particularly *B. proteus* and streptococci. Mitchnikoff<sup>2</sup>, in Paris, found *B. proteus vulgaris* in 204 out of 218 cases in stools of infants, suffering from diarrhea. He concluded that this organism was the specific cause of infantile diarrhea, though it is often present in the normal intestinal tract. Bertrand<sup>3</sup>, in London, examined stools of 55 children suffering from the infantile diarrhea and his findings were positive in all cases for presence of *B. proteus vulgaris*. He also examined stools of 24 normal children and found the same organism in two cases. Morgan<sup>4</sup> iso-

lated Morgan N 1 bacillus from feces of 28 patients out of 58. The 20 healthy persons, used for control, were free from this organism.

Lewis (cited from Wilson<sup>5</sup>) in the summer of 1911 at Birmingham, noted an increase in the number of non-lactose-fermenting colonies in diarrheal stools. Morgan's bacillus was found in 101 out of 140 cases, or 72.1%, and in 17 of 100 children under 5 years of age, or 17%. He found that of 20 strains isolated from diarrheal children, 14 proved fatal to rats or mice on feeding. On the other hand, Ross (in Manchester) and O'Brien (in London) (cited from Wilson<sup>5</sup>) in the summer of 1910, showed that there was an increase in the number of non-lactose-fermenting bacilli in the stools of patients with diarrhea. Morgan bacillus was comparatively infrequent, 5% (Ross) and 14% (O'Brien) respectively.

Alexander (Wilson<sup>5</sup>), at Liverpool, in 1911-12 encountered Morgan's N 1 bacillus in only 23 out of 174 cases, or 13.2%; moreover he found it in 5 out of 75 normal children, or 6.6%. Orr, in 1910-11 (Wilson<sup>5</sup>) at Shrewsbury, did not find one in an examination of 19 cases.

Hiss and Russel<sup>6</sup> recovered a bacillus belonging to the dysentery group (*Y* bacillus) from a colon of a child that died of acute diarrhea. Duval and Basset<sup>7</sup>, Duval and Shorer<sup>8</sup>, Wollstein and Dewey<sup>9</sup> in their studies of the etiology of summer diarrhea found that 69% of patients had in their stools, or in case of their death, in the intestinal mucosa, *B. dysentery* (mostly Flexner type).

Tenbrock and Norbury<sup>10, 11</sup> in their study of 79 infants in 1914 found *B. dysentery* Flexner in 54 cases and in the study of 75 infants in following 1915 year, same organisms in 31 cases. Davison<sup>12</sup> found in Birmingham (U. S. A.) in 69% of his cases of diarrhea, *B. dysentery*, Flexner's type being twice as common as Shiga's and in Baltimore—82% of cases, all dysentery bacilli being of Flexner type. Wollstein, Duval and Bassett (cited from Brown<sup>13</sup>) discovered the dysentery bacilli in a series of cases of infantile diarrhea and thought that the cause of this disease was found. Patterson and Williams<sup>14</sup> found in three cases of acute infantile diarrhea the Sonne dysentery bacillus.

Tiveli<sup>15</sup> demonstrated the presence of a ba-

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cillus of the dysentery group in 46 out of 50 nurslings (in 92%). The author thinks that the rôle of intestinal streptococci and of coli, proteus or pyocyaneus bacilli is doubtful. Gildermeister and Baerthlein<sup>16</sup> found in the stools of infants with summer diarrhea Flexner bacilli in 9 cases, Bac. parat. B in 4, B. enteritidis Gaertner in 1, and the Dahlem bacillus in 22 out of 70 cases. Baerthlein and Huwald<sup>17</sup> studied 72 cases out of which they found Flexner dysentery B. in 21, Bact. paratyph. B. in 7, and the Dahlem bacillus in 24 cases.

Moro<sup>18</sup> and Bessau-Bossert<sup>19</sup> stressed the regularity with which they found the coli lactis aerogenous group in the stomach and duodenum in children suffering from the nutritional disorders. Goldschmidt<sup>20</sup> pays particular attention to a bacillus isolated by Adam<sup>21</sup> and named by him as dyspepsia colon bacillus. She states that this type has definite serological characteristics and can be differentiated from other types of B. coli and from bacteria of the typhoid-paratyphoid-dysentery group.

Denison and de Holl<sup>22</sup> think that the acute diarrheas of infancy should be divided into gastrointestinal infections almost invariably due to B. dysentery and gastrointestinal disturbances of function due to numerous causes. They studied 35 cases of infectious diarrhea in children and infants during which studies the authors isolated 159 cultures showing fermentations characteristics of B. dysentery. Of 142 tested cultures, 116 were agglutinable in anti-serums for stock strains. Isolated strains corresponded to Y (Hiss), Mount Desert, WX, V, and Sonne strains.

Johnston, Brown and Kaake<sup>23</sup> on the basis of their observations of 67 hospitalized cases conclude that acute intestinal intoxication is an internal infection. Many cases of so-called fermentative diarrhea are of the same type. The causative organisms are members of the colon-paratyphoid paradysentery group. McKinnon<sup>24</sup> states that diarrhea and enteritis means gastrointestinal infection and all g. i. infections should be grouped together for the purpose of control. The seasonal distribution of deaths from intestinal influenza closely coincides with the deaths from diarrhea and enteritis. This coincidence leaves no doubt in him, that the causative agent

of so-called "intestinal influenza" is one or more of the common gastrointestinal organisms.

Weaver and Tunncliffe (Brown<sup>13</sup>) who were searching for dysentery bacilli in summer diarrheas, conclude that however the case may be in epidemic dysentery in children, it looks as if we should be obliged for the present to say we are unacquainted with a specific cause for all cases of summer diarrhea in infants, but that it is likely that many cases are due to the single or combined action of various forms of bacteria. Johnston, Brown, Tisdall and Fraser<sup>25</sup> studied 172 infants with acute intestinal intoxication and found bacteriological and serological evidence of infection with pathogenic organisms of the colon-paratyphoid-dysentery group. Hassmann<sup>26</sup> states that in larger number of enteric diseases in infants and children (dyspepsia, toxicoses, pyurias, simple icterus) it was possible to find organisms belonging to paracoli group. These organisms were found especially often in relapses of intestinal disorders. Wilson<sup>5</sup> on account of his observations on a spontaneous epidemic in mice associated with Morgan's bacillus and from literature review concludes that no one organism can be regarded as the specific cause of summer diarrhea, but that any one of a number of potentially pathogenic bacteria, either alone or in conjunction, may be capable of giving rise to disease. The tentative conclusion is advanced that summer diarrhea is not a bacteriological entity, but is a disease that can be caused by a number of different members of the non-lactose-fermenting group. It is worth while to remind that different workers blamed other organisms (as Bact. pyocyaneus or Cl. Welchii) as being the causative agent of summer diarrhea.

In Fort Worth, Texas, Terrell and Owen<sup>27</sup> in September, October and November, 1934, observed an epidemic of diarrhea affecting infants, children and adults. There were thousands of cases predominating in infants and children. Almost all of the cultures made from fresh stools showed a predominance of large gram positive diplococci that were neither hemolytic nor green producing. Cultures from the ulcers and intestinal contents showed the identical organisms.

Abt<sup>28</sup> states that the diarrhea may result without the introduction of bacteria in the food and

that no one so far has been able to isolate or definitely determine any injurious products in severely toxic children. Kahn<sup>29</sup> found *B. morgani* I in the stools of 5 out of 6 infants suffering from gastroenteritis associated with infection of the upper respiratory tract and also—of 15 out of 21 control cases and of 14 out of 38 infants from a well-baby clinic. If repeated cultures of the stools are made then *B. morgani* I, *B. paracoli* and *proteus asiaticus* can be isolated in a much greater number of cases, than previously reported. The mere recovery of *B. morgani* I from the diarrheal stool is not proof of its pathogenicity, but additional evidence must be obtained, such as agglutination in high dilution with the blood serum of the suspected patient. Young<sup>30</sup> states that the diarrhea and vomiting in infants is the most serious manifestation of a catarrhal syndrome. It is a misconception, he says, to regard diarrhea and vomiting as an infective disease attacking infants only in the late summer months. Cases are quite common in winter, and during the past five years, there have been definite outbreaks coinciding with outbreaks of influenza in the adult population. Jahr<sup>31</sup>, studying the diarrhea of nurslings in the first three months of life, cannot explain these symptoms by assuming the infection to be of influenzal origin. He states that the clinical, roentgenological and metabolic examinations point to an upset of synergy of the gastrointestinal function. Poole and Cooley<sup>32</sup> found that there was no constancy in the bacteriological observations in the stools from infants suffering from diarrhea. Hamilton<sup>33</sup> studied 27 cases of a classical diarrhea in infants. There was diarrhea, vomiting, dehydration and a more or less marked prostration. Two of the patients were found later to be suffering from a dysenteric infection. Earlier, Arnold<sup>34</sup>, on account of his experimental and statistical studies, showed that the infant mortality from diarrhea is associated with the high temperature environment, which depresses gastric secretory function. This leads to the alkalization of the small intestinal contents and multiplication of bacterial flora. Gafafer<sup>35</sup> studied the infant mortality from diarrhea and enteritis in London in the period from 1876 to 1927. He definitely showed that the infant mortality rate from this disease depends on tem-

perature. When the temperature range or mean temperature rises above (or falls below) its ordinary summer level, there is likely to be a rise (or fall) in the diarrhea and enteritis infant mortality rate.

Earlier, Brownlee and Young<sup>36</sup> analyzed the data of London for 60 years, concerning the mortality from diarrhea, and came to the conclusion that the disease (diarrhea) which has been regarded as an epidemiological entity, is not so in reality. Wilkins<sup>37</sup> studied a group of 628 white infants under two years of age, from the poorer middle class. In the summer of 1925, 7.5% to 13% of infants developed a dysentery and 27% developed simple diarrhea. Of all cases of gastrointestinal disturbance there were only 19% to 33% caused by dysentery. Reed<sup>38</sup>, in his study of bacillary dysentery in California, states that "the infection may lie dormant in the intestine without symptoms until the clinical disease is aroused by some intercurrent agent." As an agent, he mentions unrelated infection, indigestion, chilling or fatigue.

From this review of the literature, we can conclude that the exogenous bacteria do play a part in causing a certain number of infants' diarrhea, but the majority of cases are definitely connected with the season, when with high temperatures prevailing, a physiological diarrhea in function of the gastrointestinal tract occurs and this diarrhea is associated with changes in the endogenous flora.

Setting aside the cases of diarrhea attributed to a specific exogenous microorganism, we will consider the normal function of the gastrointestinal tract toward the exogenous and endogenous bacteria, its disturbance from the exposure to heat and the changes that may take place from such.

*Defense mechanism of the stomach.* In the normal state the gastrointestinal tract possesses an ability first, of defending itself from the exogenous flora and, second, keeping the endogenous flora in balance and under control.

Arnold<sup>39</sup> reviewed the literature on the bactericidal power of the upper gastrointestinal tract up to 1925. Here we want to add some later data. Bartle and Harkins<sup>40</sup> studied (bacteriologically and germicidally) 26 gastric juices and wash waters of various degrees of acidity, from no free HCl to a hydrochloric value of 100



degrees. They concluded that there is an actual bactericidal action constantly being exerted by the gastric juice by its hydrochloric acid content, and possibly, because of some other element, chemical constituent or enzyme. Lowenberg<sup>41</sup> concludes from his experiments that the bactericidal action of a normal stomach is well-marked and that it is independent of the presence of a HCl acid. He brings up cases, where there is synchronous absence of HCl acid and viable bacteria in the stomach. Meyer and Lowenberg<sup>42</sup> state that the duodenal contents are not only bacteriostatic, but also more or less bactericidal. They attribute this to specific substances, which they name bactericidins and believe that they are secreted by the mucous membrane of duodenum and may be found also in the stomach contents. Putkonen<sup>43</sup>, on the basis of his experiments, attributes the disinfecting power of the stomach to the hydrogen ion concentration of the gastric secretion and connects it with the hydrochloric acid. Kestner<sup>44</sup> also concludes that the hydrochloric acid is the bactericidal factor in the defense power of the stomach. Klinge<sup>45</sup> found that the contents of the stomach during fasting are usually sterile in cases of uncomplicated achylia. Therefore, he thinks, the hydrochloric acid of the gastric juice is not the only disinfecting principle of the stomach. He presupposes a special bactericidal action of the living mucous membrane of the stomach, which fails only in severe functional disturbances. Emery<sup>46</sup> selected 37 cases from medical records of the Peter Bent Brigham Hospital, where free HCl failed to show on one or more gastric analyses. The incidence of diarrhea in these cases was so small that, in his opinion, it was not justified to think that the absence of HCl is a cause of diarrhea. It seems to him more probable that the achlorhydria and diarrhea are both symptoms of the same condition. Keller<sup>47</sup> states that there are also some relative bactericidal powers in the duodenum of nurslings. Lockemann and Lerner<sup>48</sup> attribute the high bactericidal action of the stomach juice to the presence of thio and sulphocyanogen which jointly with the free hydrochloric acid exercises a strong disinfecting power on the stomach contents.

So it seems that there is no noticeable dis-

agreement on the existence of bactericidal power of the upper gastrointestinal tract.

Lately, in this laboratory, the bactericidal power of the stomach was also studied qualitatively. Johnson<sup>49</sup>, experimenting on dogs with non-leaking gastric fistula and Nedzel and Arnold<sup>50</sup>, using dogs under anesthesia with an isolated stomach, showed that a stomach containing free acid would destroy the viability of the exogenous bacteria, and the stomach with no free acid would contain viable organisms. If the contents of stomach do not show a high and persistent concentration of free hydrochloric acid then, though the exogenous bacteria rendered non-viable and the contents of the stomach seem to be sterile, the addition of a  $\text{Na}_2 \text{HPO}_4$  buffer solution would show, in some cases, a presence of viable forms of introduced bacteria.

The results of these experiments on dogs were confirmed by somewhat similar studies on rats in this laboratory by Kominik and O'Malley.

One agar plate of *B. prodigiosus* was washed with one hundred cc. of normal salt solution. One cc. of this suspension was introduced by means of a catheter into the lumen of the stomach of normal 24 hour fasting rats. These animals were killed at definite time intervals. Series of eight were killed at 15, 30, 45, 60, 75, 90, 120, 150, 210, 225, and 240 minute intervals. Animals were killed by use of a lethal gas chamber.

An incision was made into the abdominal cavity and clamps placed on the cardiac and pyloric areas of the stomach to isolate the gastric content. An incision was made through the stomach wall and the fluid content aspirated by means of a Wright's pipette, care being taken not to touch the stomach wall.

The hydrogen ion concentration of the aspirated fluid was taken, using the La Motte apparatus. Two drops of contents were cultured on agar plates which were incubated and read after twenty-four hours.

The results showed that in the stomach following the ingestion of bacteria, a periodic fluctuation in hydrogen ion concentration is seen accompanied by a proportionate variability in number of colonies found. Forty-five minutes to sixty minutes after ingestion of bacteria a marked rise in pH of content is seen accompanied by a sharp rise in the number of col-

onies. The stomach seems cyclic in its pH concentration as well as recoverable viable bacteria.

We also have reinvestigated the distribution of orally ingested bacteria within the enteric tract in view of the recent findings concerning the non-viable state of bacteria within the gastric lumen, depending upon the acid base balance of this organ.

A suspension of *B. prodigiosus* in a sterile saline solution was placed in the free acid stomach of a dog through a fistula and the contents removed after 15 minutes. Cultures were made to determine the viability of bacteria.

The material was then neutralized with  $\text{Na}_2\text{HPO}_4$  buffer solution and injected into the washed lumen of the ileum of a second dog under nembutal anesthesia. In four hours, the dog was killed and specimens were taken from the ileum with a swab and agar plates inoculated. Eight experiments were performed and in two of them we succeeded in obtaining positive results. The nonviable *B. prodigiosus* were made viable within the lumen of the ileum.

Another series of experiments were performed using 3 dogs, in which the ileum had been fixed to the anterior abdominal wall as well as a non-leaking cecal fistula established.

Gastric contents containing non-viable *B. prodigiosus* as outlined above was injected directly into the lumen of the ileum and specimens obtained from the cecal fistula after 1, 2, 3, and 4 hours. Surface inoculations of agar were made with proper dilutions to determine the presence of viable *B. prodigiosus*. One dog gave constantly negative results, one dog positive in 33% of the experiments and another positive in all experiments.

Some of the bacteria made non-viable within the gastric lumen could be shown to regain their ability to grow when they reach the lumen of the ileum.

These experiments substantiate the previous observations made in this laboratory; 26 dogs were fed with a suspension of *B. prodigiosus* and disposed at different time intervals (1, 2, 3, and 4 hours). The acidity of gastric contents was determined and stomach, duodenum, jejunum and ileum were examined for presence of viable *B. prodig.* In cases where there was no free acid in the stomach, the viable *B. pro-*

*digiosus* was found through the whole gastrointestinal tract, but where free acid was present, there were no viable *B. prodigiosus* detected. In about 20% of experiments (where free acid was present in the stomach) a viable *B. prodigiosus* was found in ileum only, while stomach and other segments of the intestine showed no presence of viable *B. prodigiosus*.

Furby and Arnold<sup>51</sup> showed that the manual manipulation of the intestinal tract in the anesthetized animal causes a loss of power by the small intestine to control the bacterial flora in contact with the mucosa. Kaufman<sup>52</sup> administered saponin to mice orally and found that this causes a change in the acid-base equilibrium of the upper gastrointestinal tract and the sudden appearance of a coli-aerogenous type of flora in the stomach. Nedzel, Stonezipher and Arnold<sup>53</sup> showed the same on dogs.

Gutscher<sup>54</sup> found that the guinea-pigs' stomach normally contains a very poor flora and is free from *B. coli*. The ascension of *B. coli* up to the stomach of a guinea-pig is easily produced by subcutaneous injection of organisms pathogenic for the guinea-pig, as paratyphoid b., streptococcus and staphylococcus, and by producing a functional disorder of the intestine by a subdermal injection of arsenous acid.

Nedzel and Keller, in this laboratory, established an isolated stomach and removed its contents with a sterilized pipette, part of which was used for the determination of pH and the other part for inoculation of the endo plate.

Two specimens were obtained after five and ten minutes, and served as controls. One cubic centimeter of a 20% solution of saponin was introduced within the lumen. Specimens were removed at 5, 15, 30, 45, and 60 minute time intervals, following the same technic as for controls. Ten dogs showed a complete absence of *B. coli* in the contents of the stomach, five dogs gave a considerable increase of *B. coli* after the introduction of saponin, in comparison to the control tests, 3 dogs were negative in the control, but showed a considerable amount of *B. coli* in their stomach contents after the introduction of saponin. The disturbance in the self-regulating bactericidal mechanism of a stomach by saponin revealed the viable forms of *B. coli* in the stomach, these previously being non-viable. The above mentioned work shows that



the defense mechanism of the stomach operates during the normal physiological state of gastrointestinal apparatus. Earlier, Arnold and Singer<sup>55</sup> showed that the gastrointestinal irritant in certain Salmonella food poisonings caused a change in the distribution of the endogenous flora. Arnold and Hull<sup>56</sup> showed that in experimental diarrhea in dogs (young and adults) the self-disinfecting power of the gastrointestinal tract is inhibited. They emphasize the fact that if pathogenic bacteria were ingested during the attack of diarrhea, the hazard of infection would be increased. The epidemics of typhoid fever that follow a large outbreak of a waterborne diarrhea, they think, may be due to the disturbances in the equilibrium between the parasites and host. The *B. typhosus* increases its distribution and the susceptibility of the host is enhanced. More detailed data on the control of the bacterial flora within the lumen of the stomach may be obtained in Arnold's<sup>57</sup> review of the effect of experimental alterations of acid base balance and the age of the subject.

#### THE DISINFECTING MECHANISM OF THE GASTRO-INTESTINAL TRACT AND SPLANCHNO-PERIPHERAL BALANCE

We readily can see now, that the exogenous and endogenous flora of the upper gastrointestinal tract is under constant control of the stomach activity. Any irritation, manipulation or change in function of this apparatus immediately leads to the loss of control over the bacteria. But it is not necessary for the upset of this function of the stomach to deal directly with the organs. As early as 1884, Dastre and Morat<sup>58</sup> pointed out that the autonomous nervous system acts as though it is composed of two parts, which constantly and simultaneously act in opposite directions, balancing each other. The activation of one leads to the immediate suppression of the other. On one side we have the splanchnic region and on the other the peripheral. These conclusions have been well supported by the later clinical and experimental evidence. The suppressed peripheral activity, which can be noted by contraction of peripheral blood vessels, leucopenia and diminished permeability, is accompanied by activation of the function in the splanchnic region. The gastric secretion is increased (Müller and Petersen<sup>59</sup>,

Arquin,<sup>60</sup>); the same stays for bile (Petersen and Müller<sup>61</sup>, Müller and Kast<sup>62</sup>); during the activity there also happens the concentration of leucocytes in the splanchnic vessels (Müller<sup>63</sup>) an increase in permeability in the liver and splanchnic region is also observed (Petersen, Milles and Müller<sup>64</sup>). We also irritated the stomach of the dogs by introduction of saponin and this was accompanied by a peripheral leucopenia. On the other hand, an increase in the activity of the skin glands and in permeability and a peripheral leucocytosis are accompanied by a diminished activity in the splanchnic region, (Müller and Petersen,<sup>65</sup> Petersen and Oettingen<sup>66</sup>). Simultaneously with a leucopenia in the stomach (and leucocytosis on periphery) there was also observed a low count of leucocytes in the liver, spleen and intestine, the number of leucocytes being approximately the same in all these organs (Müller, Petersen and Hölscher<sup>67</sup>). Suppression of the activity of the splanchnic region by alkalization of duodenum is accompanied by a peripheral leucocytosis (Arnold and Brody<sup>68</sup>). All aforesaid shows that the change in the function of a gastrointestinal tract may be caused by certain influences on the periphery. The natural agents that we meet in our daily life and that act directly on the periphery, generally speaking, are the exposures to cold or heat. Let us consider the experimental and clinical evidence, supporting this statement.

Bogendoerfer and Sell<sup>69</sup>, in their studies of 170 healthy and sick persons, found that the application of heat or cold to the skin would cause decrease or increase in the flow of gastric juice and correspondingly, the amount of hydrochloric acid content in the latter.

Arnold and Brody<sup>70</sup> showed that when normal dogs are placed in warm rooms there is an interference with the normal self-disinfecting power of the intestinal tract. Bacteria ingested by mouth are passed on to cecum in a viable state, but the same animals, if kept at ordinary temperature, show the usual self-disinfecting power for ingested bacteria. Arnold<sup>71</sup> showed that bacteria injected into a ventrally fixed duodenum in dogs placed in the warm rooms soon appeared in the cecum in large numbers. These same animals if kept at ordinary temperature would destroy the bacteria before they reached the cecum. Arnold<sup>72</sup> fed dogs with an agar

siant of *B. prodigiosus* mixed with 150 to 200 cc. of 1% peptone water. One group of dogs was kept in an ordinary temperature room and the other group in a warm chamber. The latter showed no destruction of ingested bacteria in the cecum, while the former—no trace of viable bacteria in 2½ hours. The destruction of bacteria and their viability is directly connected with the pH of the stomach contents.

The temperature of an environment also changes the distribution of intestinal flora. The duodenum and the stomach, normally free from bacteria under exposure to heat of the body, are invaded by fecal flora. The flora of the lower part of the bowels ascend into the upper part. This is clearly shown by Moro<sup>18</sup> in children. There is much experimental evidence that the ascension of fecal flora into the upper part of gastrointestinal tract is steady correlated with the pH of the stomach contents (Arnold<sup>39</sup>).

The change in the gastrointestinal flora during the exposure to heat, as we have seen, does not limit itself to the mere ascension of the fecal flora into the duodenum and stomach. The liver is also involved and particularly the gall-bladder. The bacteria that are lodged in the latter and that do not appear in the gut, under influence of heat upon the body, may descend and be found in the intestine and feces. This was proved experimentally in our laboratory in the following manner (Arnold and Nedzel).

The experiments were performed on dogs. First, we established non-leaking fistula through the appendix in all of our animals, thus permitting ourselves to obtain specimens from the cecum at will. Under aseptic surgical precautions and ether anesthetic, the bile in the gall-bladder was removed with a sterile needle and syringe. Concentrated saline washings of the agar surface of a Petri dish culture of *B. prodigiosus* and *B. enteritides* was suspended in the bile and reinjected into the lumen of the gall-bladder. After the anterior abdominal incision had healed, specimens were frequently removed from the cecum and examined by bacteriological cultural methods for the presence of the gall-bladder bacteria.

We observed four dogs over a period of 30 days and removed specimens from the cecum each day. During the first week after the opera-

tion and before the wound had healed, we found both *B. prodigiosus* and *B. enteritides* in the cecum. Beginning with the eighth day and extending to the end of the period of observation, we were unable to find either bacteria in the cecum. These four dogs were killed and *B. prodigiosus* and *B. enteritides* were found in the gall-bladder in three animals. In one animal these bacteria had disappeared from the gall-bladder.

TABLE 1

The influence of temperature environment upon the passage of gall-bladder bacteria down to the cecum. Bacteria injected into gall-bladder under sterile precautions. Average of eight dogs.

Days After Operation	Number of <i>B. Prodigiosus</i> and <i>B. Enteritides</i>	Temperature Controlled Environment	Relative Humidity
7	0	68-70	40-50
8	0	68-70	40-50
9	0	68-70	40-50
10	0	68-70	40-50
11	0	68-70	40-50
12	0	68-70	40-50
13	+	95	90
16	0	68-70	40-50
18	+	95	90
20	0	68-70	40-50
27	0	95	90

We prepared eight dogs after the method described in the preceding paragraph and determined the influences of temperature upon the passage of the gall-bladder bacteria down the small intestine to the cecum. Table I gives these results in a condensed form. It will be noted that hot and humid conditions cause the gall-bladder bacteria to appear in the cecum. These eight dogs were killed and six showed the *B. prodigiosus* and *B. enteritides* in the gall-bladder.

Another group of experiments (Table 2) was performed where the technique was modified so as to produce a longer biliary carrier state in our experimental animals. Agar in tubes was inoculated by swab cultures with *B. prodigiosus* and *B. enteritides* and incubated for forty-eight hours. One agar plug was placed in the gall-bladder under sterile precautions after the bile had been removed. Table 2 shows the results obtained upon six animals using different temperature environments. It will be noted that the carrier state persists longer than when these bacteria are injected into the bile in the gall-bladder. The hot and humid environment causes the appearance of the biliary bacteria in the cecum. These six dogs were killed and five dogs showed the *B. prodigiosus* and *B. enteritides* in the gall-bladder. The remaining animal



did not show either of these bacteria in the gall-bladder.

TABLE 2

The influence of temperature environment upon the passage of gall-bladder bacteria down to the cecum. Agar plugs seeded with bacteria were placed in the gall-bladder under sterile precautions. Average of six dogs.

Number of B. Prodigiosus Days After Operation	and B. Enteritides	Temperature Controlled Environment	Relative Humidity
7	+	68-70	40-50
10	0	68-70	40-50
12	0	68-70	40-50
14	0	68-70	40-50
17	0	68-70	40-50
18	+	95	90
19	+	68-70	40-50
20	0	68-70	40-50
21	0	68-70	40-50
22	0	68-70	40-50
23	0	68-70	40-50
24	+	95	90
27	0	68-70	40-50
28	0	68-70	40-50
31	0	68-70	40-50
32	+	95	90
33	0	68-70	40-50
35	0	68-70	40-50
37	0	68-70	40-50
38	+	95	90
40	0	68-70	40-50
42	0	95	90

It is of interest to mention here the suggestion of Carneiro de Medonca<sup>73</sup> which is brought up as a result of his recent studies of the endemic outbreaks of dysentery in a hospital for insane in Rio de Janeiro. The author thinks that the climate, as a factor in causing these outbreaks, is not excluded. There may exist a relationship between the climate and excretion of bacilli by carriers. At present we have definite proof of this in clinical material. Petersen<sup>74</sup> has studied daily excretions of *B. Typhosus* by chronic typhoid carriers. His findings show that the number of excreted bacteria change daily and that this change is definitely connected with meteorological alterations.

*Permeability of Gastrointestinal Wall.* It is generally accepted that the normal mucous membrane of the gastrointestinal tract is not permeable for bacteria. There must be some stimulus involved to render the mucous membrane permeable for bacteria. Arnold<sup>39</sup> showed that the bacteria, introduced into the duodenum with an alkalized egg-white, or bile or neutralized bile, are found in the lymph of the thoracic duct. *B. prodigiosus* in saline solution introduced directly into the duodenum may be found in the blood (Nedzel and Arnold<sup>75</sup>) and fresh egg-white increases the amount of bacteria permeating the wall of the gastrointestinal tract.

Fisher<sup>76</sup> showed the same for the yeast cells. Boone, Chase and Brink<sup>77</sup> also prove the existence of considerable absorption of bacteria from the intestine into the portal circulation. Their protocols, as well as ours, show that this absorption is not a constant factor, but varies in the animals and in the specimens of the same animal taken at different time intervals. They also noted a marked increase in normal duodenal absorption as a result of a local passive congestion. Cirrincione and Francona<sup>78</sup> showed that disturbances in the arterial blood supply of the small intestine causes an increase in the rate of absorption of bacteria into the blood stream from the small intestine.

Fisher<sup>79</sup> also found that the yeast introduced through the rectum is absorbed from the lumen of the colon. Egg-white mixed with yeast increases the number of yeast cells absorbed from the large intestine of the dog. The presence of a greater number of viable yeast cells also can be demonstrated in certain organs after the application of egg-white to the duodenal mucosa and yeast introduced into the lumen of colon through the rectum. This, she thinks, may not be due to increased absorption, but to a decrease in the destruction of yeast in the body. The enclosed typical protocols speak for the disturbances of autonomic nervous system. Suger and Arnold<sup>80</sup> studied the absorption of *B. prodigiosus*, *B. murii* and *B. welchii* from the lumen of the large intestine of dogs. The bacteria were introduced through the rectum by means of a catheter, lubricated with vaseline. This mechanical irritation due to the introduction of the catheter caused the appearance of exogenous flora in different organs. The authors also noted the appearance in the internal organs of *B. coli* and cocci groups, mainly enterococci. The similar experiments were performed on rats and the observations made up on dogs have been substantiated.

Nedzel, Stoneziphér and Arnold<sup>53</sup> investigated the appearance of *B. coli* in internal organs of dogs, at different time intervals, after administration of saponin; *B. coli* appeared in the wavelike cycles, which are characteristic of autonomic nervous system disturbances.

The action of egg-white on the increase of permeability is explained as a result of its ac-

tion upon the splanchnoperipheral balance which involves the changes in the blood vessels.

**Temperature Measurements.** The contraction and dilation of blood vessels are associated with decrease and increase in the activity of organs that are supplied by these vessels. Diminished or augmented activity will be followed by a drop or elevation of the temperature in these organs. On the basis of this we set up a series of experiments in the following manner.

For our temperature readings of a mucous membrane of the gastrointestinal tract we used a Queen's potentiometer.

Ten dogs were used. Under nembutal anesthesia the abdomen was opened and an opening in the stomach or intestine was made according with the object of the experiment. For measurements of temperature of mucous membrane of the stomach, the ends of three thermocouples (devised by Dr. Bachem), covered with shellac and embedded in celloidin, were introduced into the stomach and fastened to the inner surface by

a ligature. For recording the temperature of the mucous membrane of the intestine, the three thermocouples mounted on a piece of rubber tubing of suitable diameter and fastened with a rubber band were introduced into the intestine. For measuring the temperature of the rectum the thermocouples were introduced through the anus.

Heparin was injected intravenously (10 mlg. per kilo), the femoral artery opened and a long glass thermometer introduced through it into the abdominal aorta.

The results are shown on the accompanying graphs 1 and 2. The abscissa represents the time from the beginning of the experiment; the ordinates, temperature in Centigrade. Dotted lines represent the findings of the temperature in the abdominal aorta, the straight line, the temperature of the surface of the mucous membranes.

The graphs show that the application of cold to the skin is followed by a drop in the temper-

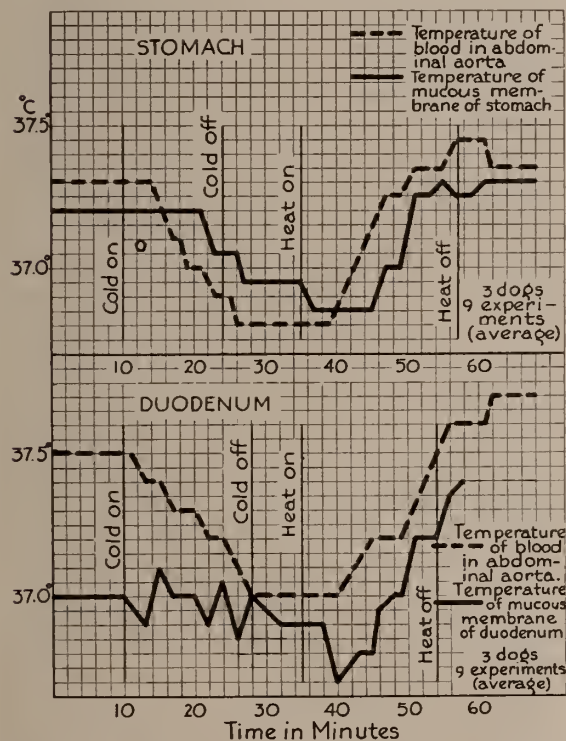


Chart 1. The abscissa represents the time in minutes from the beginning of the experiments, the ordinate, temperature in centigrade. The perpendicular lines show the time of application of cold and heat to the body surface of the dog. Dotted lines represent the temperature in the abdominal aorta, the straight lines, the temperature of the surfaces of the mucous membranes.

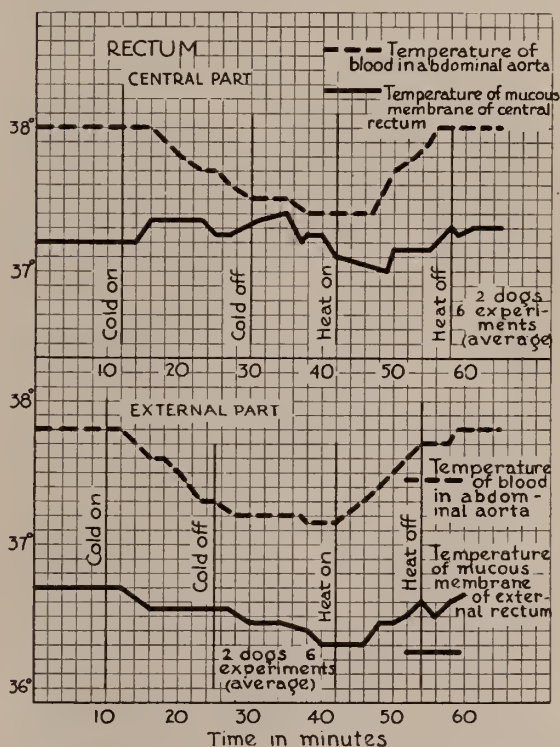


Chart 2. The abscissa represents the time in minutes from the beginning of the experiments, the ordinate, temperature in centigrade. The perpendicular lines show the time of application of cold and heat to the body surface of the dog. Dotted lines represent the temperature in the abdominal aorta, the straight lines, the temperature of the surface of the mucous membranes.



ature in the abdominal aorta, and not always, on the mucous membranes of the gastrointestinal tract. The application of heat acts in an opposite manner. These drops or elevations of temperature differ: In the abdominal aorta, they are constant and gradual, while on the mucous membranes, they are delayed and irregular, quite often in reverse, of the temperature in abdominal aorta.

Graph 3 represents the results of the same experiments, but here we expressed the temperature in the abdominal aorta as a constant and the temperature of the mucous membranes in a curve. The latter shows the deviations of the temperature of the surfaces of the mucous membranes from the temperature in the abdominal aorta recorded at the same periods. These deviations are more pronounced in the mucous membrane of the stomach, less in duodenum, slightly in the central rectum, and very little at the external part of the latter. These deviations (rise or fall) do not occur gradually or regularly, but appear in a wave-like manner all the way through the experiments. We also see that the mucous membrane of the gastrointestinal tract

acts opposite to that of the skin: The application of cold on the body surface causes a rise of temperature in the mucous membrane of the stomach and intestine. The application of heat acts in reverse.

#### CONCLUSION

We know that the reflexes arising through the organs of special sense—as a stimulation of an internal ear, horrifying visual phenomena and disgusting odors—may lead to diarrhea; the latter may also appear due to excessive stimulation of the skin—a burn, bruising, tickle, and various emotional states, such as fright, sorrow and anger, but a vast group of diarrheas is definitely connected with the autonomic disturbances from meteorological influences. We know of individuals who have severe diarrhea whenever there is a sudden change in temperature (rise or drop), though most of the cases, especially in the epidemic-like form, we see in summer.

From the literature and our experiments we may assume that the cause of summer diarrhea (excluding cases definitely connected with pathogenic organisms) lies in an upset of the splanchno-peripheral balance due to external heat. The autonomic nervous system, among other functions, also mediates our adjustments to the environment. Extreme demands from this apparatus upsets the equilibrium and leads to dysfunction in our body. The extreme heat upsets the whole gastro-intestinal tract. In the first place, the defensive powers of the stomach are diminished, if not abolished entirely, which opens way for invasion by the exogenous bacteria. This break in normal function of the gastrointestinal tract leads also to the loss of control by the latter over the endogenous flora. Fecal flora ascends into the upper part of the tract. Synchronously there is an increased absorption of bacteria and their products into the blood circulation. This, in part at least, explains the constant abnormal composition of urine in cases of diarrhea in children.

And if we keep in mind that the infants' mechanism is so constructed that any deviation from its normal function quickly becomes apparent in a disturbance of its metabolism and nutrition then it is clear to us why the incidence

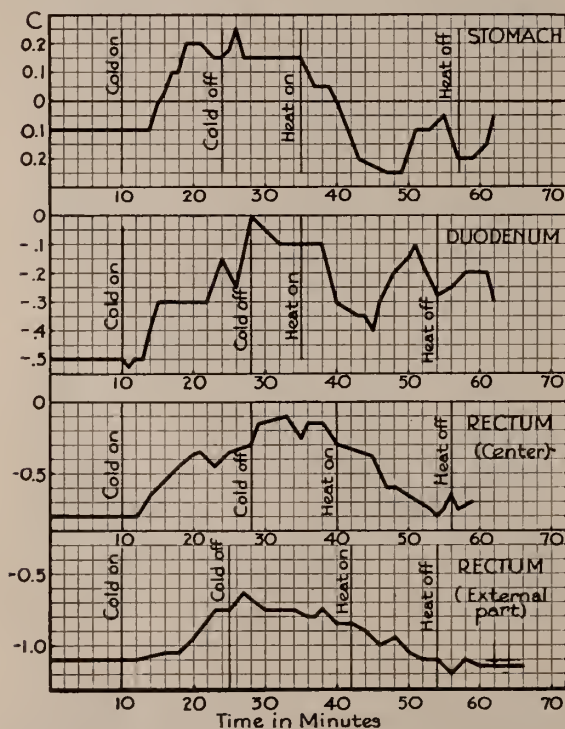


Chart 3. The temperature in the abdominal aorta expressed as a constant, the curves represent the deviation of temperature of the surfaces of the musous membranes.

of this disease among the infant population at certain seasons is so great.

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### LOBAR COLLAPSE IN CHILDREN

Gladys L. Boyd, Toronto (*Journal A. M. A.*, Dec. 7, 1935), states that the actual occurrence of lobar collapse is so restricted to the atelectasis of a lower lobe, characterized radiologically, by a basilar triangular shadow, that its discussion is practically limited to the study of the latter condition. A basilar triangular shadow may be described as a homogeneous opaque shadow in the form of a right angled triangle having for its base the diaphragm, one side of the mediastinum, and a hypotenuse formed by a line extending from the hilus to some point on the diaphragm. The latter may be straight, convex, concave or slightly irregular in its outline. Importance is attached to its character as varying with the underlying cause. These opaque areas until quite recently have been attributed to mediastinal pleurisy, seldom proved, and to fibrosis of the lung. The author has seen basilar triangular shadows in roentgeno-



grams of the lungs of fourteen children. Twelve of these were definitely associated with bronchiectasis. This represents a morbidity of only about 7 per cent of the cases of bronchiectasis studied in the period of observation. In all cases, as far as could be determined, such shadows were produced by collapsed lower lobes of the lung. There was no evidence to support Kerley's contention that such collapse usually occurs in an accessory lobe of the lung. Every case was examined bronchoscopically, and pathologic changes of the bronchial mucosa were apparent. The essential lesion is probably in the smaller bronchioles, which become occluded by secretion with resulting collapse. Dilatation is produced readily in the weakened bronchi by increased intrabronchial pressure. Whether such dilatations are compensatory, as Findley suggests, is not certain. It may be that these cases are more commonly associated with a lobar type of pneumonia than are those without lobar collapse.

#### BACTERIAL MENINGITIS: COMPARATIVE STUDY OF VARIOUS THERAPEUTIC MEASURES

Carlo J. Tripoli, New Orleans (*Journal A. M. A.*, Jan. 18, 1936), reviewed the records of the 468 cases of bacteria-incited meningitis treated in the Charity Hospital during the last ten years in order to determine the distribution of the etiologic types, the various therapeutic procedures employed and the end results. For simplicity, the cases have been classified on the basis of bacteriologic manifestations and are discussed accordingly. The review revealed that the mortality rate for cerebrospinal fever was 65.15 per cent and for other types of bacterial meningitis 98.38 per cent. The value of antiseptic chemical agents in bacterial meningitis, other than cerebrospinal fever, is believed to be limited to bacteriostasis and stimulation of phagocytosis. The therapeutics of bacterial meningitis is generally unsatisfactory. In four cases other than cerebrospinal fever, treatment by spinal lavage with nonspecific serum and eradication of primary foci of infection was successful.

#### ECTOPIC PELVIC KIDNEY

Gilbert J. Thomas and J. C. Barton, Minneapolis (*Journal A. M. A.*, Jan. 18, 1936), define an ectopic kidney as one that is congenitally displaced and has never occupied a normal position. An ectopic pelvic kidney is one that is fixed within the bony pelvis or across the spine and derives its blood supply from the adjoining large vessels, such as the iliac arteries. The embryology, incidence, anomalies of position and complications, diagnosis, treatment and operative procedure of the ectopic pelvic kidney are discussed, from which the authors draw the following conclusions: 1. Ectopic pelvic kidney is a defect of embryologic development and occurs before the eighth week. 2. The incidence in congenital ectopic kidney is one in 822 necropsies, and one in 547 urologic examinations. 3. Ectopic pelvic kidney must be considered when pelvic tumors are found in both sexes, and in female when abortions occur or when normal pregnancies are interfered with by some

abdominal or pelvic mass. 4. The diagnosis requires cystoscopy, ureteral catheterization, and bilateral pyeloureterograms. 5. Congenital ectopic pelvic kidney may be symptomless. 6. Treatment consists of nephrectomy if symptoms are produced by the ectopic kidney, provided the contralateral kidney is normal. If no symptoms are produced, if drainage is good and if no infection is present, nephrectomy is not indicated. The extraperitoneal approach is satisfactory and safe.

#### WHY I AM A MEMBER OF MY COUNTY MEDICAL SOCIETY

1. Because I am proud of my profession, and wish to be associated with the organization which represents that profession in my community, my state, and my country.

2. Because such association shows to the public that I am recognized by my fellow practitioners.

3. Because it is a pleasure to associate with other members of my profession who have a similar pride in their calling and an ambition to live up to its highest ideals.

4. Because the acquaintances and friendships of such men not only make life more pleasant but help me to keep in touch with the most advanced methods of diagnosis and treatment, and with the experience of others in the trial of new methods. It also helps me to form accurate opinions of the skill and judgment of my fellow-practitioners, and to select intelligently those whom I should wish to call in consultation in time of need.

5. Because I wish to be able to avail myself of the opportunity afforded by the meetings of such organizations to hear the leaders of the different branches and specialties of medicine bring to us the fruits of their experience, and to include in my acquaintance the members of the profession of the other sections of the state and country.

6. Because as members of the profession we have many problems to face, and whether I realize it or not, these problems affect me. In all fields of activity it has been conclusively demonstrated that organized action is infinitely more effective than individual action. Organized medicine is therefore necessary for the solution of my problems.

7. Because in his desire to relieve suffering, every physician is at times placed in a delicate situation as regards the law, and may with the best of intentions violate its letter. The understanding sympathy and support of his fellow-practitioners and organized medicine at such times may be helpful beyond calculation.

8. Because attempts on the part of dissatisfied or unscrupulous patients to profit financially by my actual or fancied mistakes, with coincidental injury to my reputation and standing in the community, can be combated only by the testimony of my fellow-practitioners, and their acquaintance with me may be of great value in satisfying them with regard to the honesty of my endeavors and the degree of my skill.

9. Because the experience of some twenty-three countries has shown that with the changing social and political conditions and ideas, political action having a drastic effect on the medical profession has been taken

with little or no regard to the wishes of that profession. There are indications that the profession in this country may soon have to face a somewhat similar situation. Organized groups control political action. I realize that any efforts we may make to prevent or to guide such action can be effective only if they represent the purposes of the vast majority of the members of the profession, thoroughly organized and acting as a unit.

10. Because in all matters affecting myself and my professional brothers I wish to be considered one of them, to stand shoulder to shoulder with those who are striving for the highest ideals and best interests of our profession, to lend them what support I can, and to feel that I am doing my part without shirking.—*Los Angeles County Bulletin*.

#### RELATION OF LEUKEMIA OF ANIMALS TO LEUKEMIA OF MAN

Jacob Furth, Henry W. Ferris and Paul Reznikoff, New York (*Journal A. M. A.*, Dec. 7, 1935), review some of the contributions to the knowledge of leukemia that have come from experimental studies in animals and attempt to correlate them with the human disease. Leukemia of man is essentially the same disease as leukemia of mice. Both the acute and the chronic forms, lymphoid as well as myeloid, are neoplastic diseases. The immature blood cells in leukemia are malignant cells, which may form tumors or diffuse infiltrations and possess characteristics of their own. Studies of leukemia of the mouse indicate that leukemia, like cancer, is of multiple etiology; its development and manifestations are dependent on intrinsic (genetic) and extrinsic factors. An analysis of these factors in the mouse and their role in the human disease requires further study.

#### MENTAL DEFICIENCY AND SEX

There is a popular idea that mentally deficient persons have an unduly strong sex appetite and are more prone to sex aberrations than are those with normal intelligence. There is little, if any, real evidence for this opinion. Mental defectives have less than the normal control over their *behavior*, so that their sex deviations are more likely to be discovered, but the lower the intelligence quotient, the less vigorous are the sex emotions.—Dr. Lionel S. Penrose, in "Mental Defect" (Farar and Rinehart), 1934.

### Marriages

ANTHONY E. REYMONT to Miss Elizabeth Elich, both of Chicago, April 25.

### Personals

This issue of the *Journal* carries the portrait cut of Dr. Rolland L. Green, President of Illinois State Medical Society, 1936-1937, as a supplement.

Dr. T. A. McTaggart of Pawnee, Illinois, a graduate of Rush, 1885, and practitioner there over fifty years, was honored on his seventy-fifth birthday by a surprise dinner and reception given by more than a hundred of his friends and neighbors.

Dr. Joseph K. Narat demonstrated a new heater for intravenous solutions and a plaster of paris cutter at the May 27 meeting of the Chicago Society of Industrial Medicine and Surgery.

Dr. E. A. Oliver spoke before the McHenry County Medical Society, May 28, on "Some Common Diseases of the Skin."

Dr. Abraham A. Low presented a neuropsychiatric program, April 30, 1936, before the Peoria County Society, at the Peoria State Hospital.

Dr. Howard L. Alt was invited to address the Marion County Medical Society at Centralia, Illinois, on May 27. Subject: "The Use of Blood Chemistry in the Diagnosis and Treatment of Disease."

Dr. Aaron Arkin was the guest speaker at the annual meeting of the Green Bay Academy of Medicine, Green Bay, Wisconsin, May 16. He spoke on "Heart Disease." He also addressed the Peoria City Medical Society, Peoria, Illinois, May 26, on "The Differential Diagnosis of Organic Heart Disease."

Dr. Archibald Hoyne spoke on "Diphtheria" at the Annual Meeting of the Iowa Public Health Association at Des Moines on April 28, and gave a paper on "Meningococcic Meningitis" at the Annual Meeting of the Iowa State Medical Society at Des Moines, April 29.

Oscar B. Nugent addressed the Muskegon County Medical Society May 22 on "Diseases of the Eye in Relation to General Medicine." He was also the guest of honor at the Texas State Medical meeting May 26. His paper is on "Cataract Extraction, Recent Modalities, Improved Technic and Better Results."

Dr. Gershom J. Thompson, Rochester, Minn., addressed the Stephenson County Medical Society at Freeport, April 9, on "Diseases of the Prostate Gland."

Dr. Robin Bosworth, Rockford, was elected president of the Illinois Tuberculosis Society at its annual meeting in Decatur, April 6.



Dr. Guy M. Cushing, Chicago, read a paper before the Will-Grundy County Medical Society, May 13, entitled "Acute Perforating Ulcer."

Dr. Abraham A. Low, Chicago, discussed "Nervous and Mental Diseases Commonly Seen by the General Practitioner" before the Kankakee County Medical Society, April 9, in Kankakee.

Dr. Leon Asher, Berne, Switzerland, lectured, April 22, under the auspices of the University of Illinois College of Medicine, on "The Function and Mechanism of the Vegetative Nervous System."

A symposium on physical therapy as employed in ophthalmology was presented before the Chicago Ophthalmological Society, April 20, by Drs. Oscar B. Nugent, James Larkin, James T. Case and John S. Coulter.

At a meeting of the Morgan County Medical Society, April 9, speakers were Drs. Kenneth H. Schnepf, Springfield, on "Correlation Between Functional Pathology and Atmospheric Variability," and Howard L. Alt, Chicago, "Iron Deficiency of Anemias."

At a meeting of the St. Clair County Medical Society in East St. Louis, May 7, Dr. Vincil Rogers Deakin, St. Louis, discussed the Corbus-Ferry vaccine for the treatment of gonorrhea.

At a meeting of the maternal welfare committee of the Chicago Gynecological Society, May 19, the theme for discussion was "Deaths in 1934 Following Forceps Delivery," presented by Dr. Emil A. Rach.

Dr. Frank J. Jirka, state health commissioner, addressed the Douglas Park Branch of the Chicago Medical Society, April 21, on activities of the state health department, while Dr. Harry J. Isaacs discussed the medical and surgical aspects of jaundice.

At a meeting of the Chicago Pathological Society, May 11, Dr. Rudolph Kronfeld spoke, among others, on "Histopathology of Dental Infections" and Drs. Howard Zeitlin and Ben W. Lichtenstein, "Cysts of the Third Ventricle with Colloid-like Contents."

Dr. Richard B. Capps, among others, addressed the Chicago Society of Internal Medicine, April 27, on "Observations on Venous Tone and Blood Flow in the Hand: Special Reference to the Reflex Effect of a Noxious Stimulus."

At a meeting of the Chicago Society of Allergy, April 20, Drs. Carl A. Dragstedt spoke on "Mechanism of Anaphylaxis" and Theodore L. Squier and Frederick W. Madison, Milwaukee, "Hematologic Response in Food Allergy (Eosinophilia in the Leukopenic Index)."

At a meeting of the Henry County Medical Society, May 14, Dr. Raymond W. McNealy, Chicago, spoke on "Biliary Tract Disease from the Surgical Aspect," and Dr. Andrew C. Ivy, Chicago, "Therapy of Biliary Tract Disease from the Viewpoint of Applied Physiology."

At a meeting of the Chicago Pediatric Society, April 21, the "Evaluation of Oxygen-Carbon Dioxide Mixtures in the Treatment of Pneumonia" was discussed by David J. Cohn, Ph.D., Dr. Albert L. Tannenbaum, A. Baird Hastings, Ph.D., and Dr. William Thalheimer.

Dr. Frederick A. Willius, Rochester, Minn., discussed "Coronary Disease with Special Reference to Prognosis in Coronary Thrombosis" before the Peoria City Medical Society, April 21. Dr. Dean Lewis, Baltimore, addressed the society, May 5, on "Endothelial Tumors."

The Chicago Society of Allergy was addressed, May 18, by Drs. Ralph H. Scull and Francis L. Foran on "Hypersensitiveness in Chronic Flexural Eczema: A Study of Fifty-Five Cases"; Townsend B. Friedman, "Allergy in Children," and Leon Unger, "Asthma in Children: Results of Treatment."

Dr. Newton D. Smith, Rochester, Minn., addressed the North Shore Branch of the Chicago Medical Society, April 7, on "Importance of Proctoscopy" and Dr. John S. Lundy, Rochester, "Various Methods of Anesthesia, with Special Reference to the Newer Anesthetic Agents."

Dr. Hugh H. Young, Baltimore, discussed "Urological Problems of General Interest" before the Englewood Branch of the Chicago Medical Society, May 9. Dr. Fred W. Rankin, Lexington, Ky., discussed "Treatment of Carcinoma of the Lower Bowel" before the Englewood branch, April 7.

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## News Notes

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—The Illinois Radiological Society met on Sunday, April 26, 1936, at Champaign. After hearing the conclusions of the Committee in charge of the study of the constitution of the Illinois Society of Radiographic Technicians, it

was moved and approved that the Illinois Radiological Society endorse the constitution of the Illinois Society of Radiographic Technicians. A film clinic followed and interesting cases were presented by Drs. Morgan, Kariher, Gianturco and Jewell. Dr. James H. Finch presented an apparatus for the reduction of fractures.

After dinner, Dr. C. H. Warfield gave a most complete discussion of the radiological aspects of bone tumors. Dr. C. Gianturco presented two instruments for the radiographic visualization of the optic canals and the temporal bone in Stenver's position.

—Peoria City Medical Society was addressed, May 5, by Dr. Dean Lewis, professor of surgery in Johns Hopkins university, on "Endothelial Tumors." And on May 8, by Dr. Elliott P. Joslyn, clinical professor of medicine in Harvard, on "Treatment of Diabetes."

—Members of the staff of the Illinois Masonic Hospital held their first annual hobby exhibit as a feature of National Hospital Day, May 12. The exhibit included flowers grown by Dr. John R. Harger; cartoons by Dr. Clifton K. Timmons, and war souvenirs by Drs. James B. Griffin, superintendent of the hospital, and Merritt Owen Wilkins. Dr. Carl F. Steinhoff displayed figures of his drum and bugle corps, fashioned from papier-mâché.

—The Division of Biological Sciences, University of Chicago, awarded the Howard Taylor Ricketts Prize of 1936 to John P. Fox for research in pathology and to Dan H. Campbell, Ph.D., for research in bacteriology. The award is announced each year on May 3, the anniversary of the death of Dr. Ricketts, bacteriologist of the University of Chicago, who died of typhus fever while studying this disease in Mexico City.

—The spring meeting of the Iowa and Illinois Central District Medical Association was held in Rock Island, April 9. Dr. William F. Schroeder, Rock Island, read a paper on "Use of Sodium Phenobarbital as a Preanesthetic," and Dr. Thomas D. Orr, Kansas City, Mo., discussed "Important Factors in Preoperative and Postoperative Therapy, with Special Reference to Intravenous Infusions."

—An Institute of Public Safety has been established at Northwestern University, to be financed by the Automobile Manufacturers' Association and the university. It will be a research

laboratory for traffic safety problems and headquarters for the traffic control program of the International Association of Chiefs of Police. The institute will cooperate with the National Safety Council in its campaign for traffic death reduction, install traffic accident prevention bureaus in selected cities and states, provide traffic information service to police departments, and assist in improving traffic curriculums by cooperating with Harvard University's accident prevention bureau and other agencies. Franklin M. Kreml, police lieutenant in Evanston, which has won the National Safety Council's "safest city" award three times in the last four years, was appointed director of the institute.

—The Tri-State Hospital Assembly met at the Hotel Sherman in Chicago, May 6-8. Organizations sponsoring the assembly are the Hospital Associations of Illinois, Indiana and Wisconsin. Speakers on the program included:

Dr. John S. Coulter, The Care of the Patient from the Viewpoint of the Physical Therapist.

Dr. Arthur R. Cowell, Evanston, Ill., Present Status of the Treatment of Diabetes.

Dr. M. Herbert Barker, Cholesterol Metabolism—Factors in Diet and Disease.

Ruth M. Leverton, M. S., of the University of Chicago, Studies of the Iron Metabolism of Normal Women in Relation to the Menstrual Cycle.

Dr. Anton J. Carlson, Nutritional and Economic Significance of the Oxidative Rancidity of Fats.

Symposiums, conferences and round tables were held, participated in by the various groups which comprise the assembly.

—The sixty-second annual meeting of the District Medical Society of Central Illinois was held in Springfield, April 21. Clinics at St. John's Hospital were conducted by Drs. Charles B. Reed and Dallas B. Phemister, Chicago, and Ralph A. Kinsella, St. Louis. Others on the program included:

Dr. Frederick W. Light, Jr., Springfield, The Importance of Biopsy in Diagnosis.

Dr. Perry J. Melnick, Decatur, Accurate Diagnosis in Lymph Node Enlargements.

Drs. Stuart Broadwell, Jr., and Emil L. Bernard, Springfield, Treatment of Stricture of the Esophagus.

Dr. Frank Jirka, state health director, Springfield, Public Health Problems.



Dr. Rolland L. Green, Peoria, Problems in Internal Medicine.

Drs. William J. Morginson and Gerald C. Hunt, Springfield, Diseases of the Skin.

Drs. Samuel N. Clark, Jacksonville, Early Manifestations of Mental Disorder.

Howard J. Shaughnessy, Ph.D., Springfield, Answers to Questions on Interpretation of Laboratory Reports.

## Deaths

EUGENIE FERGUSON BOIES, Buda, Ill.; Jenner Medical College, Chicago, 1909; aged 63; died, February 12, in the Perry Memorial Hospital, Princeton, of pneumonia.

AUGUSTUS WELLINGTON CHANDLER, Rockford, Ill.; Rush Medical College, Chicago, 1887; Fellow, A. M. A.; fellow of the American College of Surgeons; aged 75; died, March 24, of paralysis agitans.

THOMAS R. CRAVENS, Chicago; Harvey Medical College, Chicago, 1897; aged 71; died, March 23, in St. Louis, of chronic myocarditis.

COLBERT SMITH DAVIS, Rock Island, Ill.; Northwestern University Medical School, Chicago, 1909; aged 54; died, February 9, in St. Anthony's Hospital, of pneumonia.

RICHARD DEYO DUGAN, Springfield, Ill.; Missouri Medical College, St. Louis, 1899; a member of Illinois State Medical Society and Republican candidate for coroner in primary election; aged 59; died, March 23, of angina pectoris.

CLARENCE WALLACE FLINT, Chicago; Chicago College of Medicine and Surgery, 1917; served during the World War; aged 46; died, March 10, in the Veterans Administration Facility, Hines, Ill., of pneumonia.

DORMAN E. E. HALEY, Peoria, Ill.; National Medical University, Chicago, 1904; aged 56; died, March 21, following a year's sickness.

ERNEST L. HAYFORD, Chicago; Columbia University College of Medicine and Surgery, New York, 1890; a Fellow, A. M. A.; aged 71; died, April 16, in Washington Boulevard Hospital, of carcinoma of the thyroid.

ALBERT TRIPLETT HORN, Chicago; College of Physicians and Surgeons, Baltimore, 1904; a member of Illinois State Medical Society, aged 56; died, April 19, of coronary thrombosis.

DAVID KAPLAN, Oak Park, Ill.; Rush Medical College, 1919; a Fellow A. M. A.; and member of the staff of Hines Hospital for 17 years; recently transferred to Bronx Veterans Hospital, New York, as chief cardiologist; aged 41; died there, April 17, of coronary sclerosis.

JAMES FRANCIS KEARNEY, Chicago; University of Illinois College of Medicine, 1905; many years examiner for Penn Mutual Life Insurance Company, aged 55; died, April 9, of coronary occlusion.

GUY GODLEY KILGOUR, Chicago; Jenner Medical Col-

lege, Chicago, 1903; a Fellow, A. M. A.; aged 63; on the staff of the Chicago State Hospital, where he died March 31, of peritonitis following perforated duodenal ulcer.

JOSEPH I. KNOBLAUCH, Metamora, Ill.; Northwestern University Medical School, 1893; a Fellow, A. M. A.; aged 68; died, April 29.

FREDERICK A. KOHN, Chicago; Rush Medical College, 1904; a Fellow, A. M. A., aged 52, died in St. Anthony's Hospital, March 31, of mercury poisoning, taken with suicidal intent.

DANIEL WESLEY LEGRAND, East St. Louis, Ill.; Washington University School of Medicine, St. Louis, 1901; a member of Illinois State Medical Society; aged 67; died, April 30, after a long illness.

GEORGE U. LIPSCHULCH, Oak Park, Ill.; National Medical University, Chicago, 1906; a member of Illinois State Medical Society; member of Illinois assembly two terms; served overseas as major in medical corps; aged 55; died, April 7, of arteriosclerotic heart disease and coronary thrombosis.

EARL ROACH MCCARTHY, Winnetka, Ill.; Rush Medical College, 1922; a Fellow, A. M. A.; on staff of Cook County and Presbyterian hospitals; aged 40; died April 21, in the Presbyterian Hospital, of malignant nephrosclerosis.

RUTH MEITIN, Chicago; Rush Medical College, 1934; of radiological department of Billings Hospital, aged 24; died in the same hospital, March 16, of lobar pneumonia.

ELAM TURNER MURPHY, Chicago; University of Illinois College of Medicine, 1908; a major in the medical reserve corps; aged 60; died, April 27, of carcinoma of prostate and chronic nephritis.

IMAS PRYOR RICE, Aurora; University of Illinois 1878; aged 86; died, April 4.

FRANK A. NOYES, Biggsville, Ill.; years of practice, College of Medicine, 1913; a Fellow, A. M. A.; superintendent of Kane County Springbrook Sanitarium; aged 47; died, recently, of pneumonia in St. Joseph Hospital, Aurora.

J. FREDERIC ROEMER, Waukegan, Ill.; Hahnemann Medical School and Hospital, Chicago, 1891; aged 75; died, May 4.

EMANUEL F. SNYDACKER, Kenilworth, Ill.; University of Illinois College of Medicine, 1898; a Fellow, A. M. A.; formerly on staff of Cook County, Michael Reese and St. Mary's Hospitals; aged 65; died, May 6, in Michael Reese Hospital, of coronary occlusion.

HARRIS E. TIMERMAN, Chicago; Rush Medical College, 1900; a Fellow, A. M. A.; aged 58; died March 25, by hanging with suicidal intent.

HARVEY WILLARD TUPPER, Harvey, Ill.; University of Illinois Medical College, Chicago, 1913; aged 47; died, April 18, after a year's illness.

FRANCIS CASSATT WARNE, Chicago; Northwestern University Medical School, Chicago, 1893; aged 77; died, April 18, of cerebral apoplexy and chronic myocarditis.

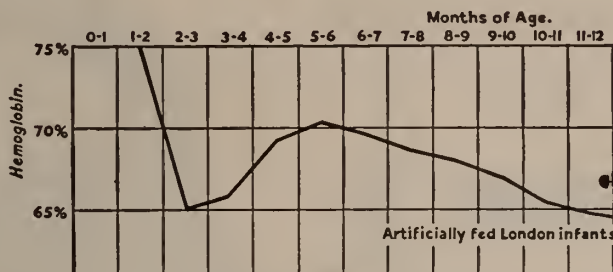


ROLLAND LESTER GREEN, M. D.  
PRESIDENT, ILLINOIS STATE MEDICAL SOCIETY, 1936-1937





# Nutritional Anemia in Infants



Hemoglobin level in the blood of infants of various ages. Note fall in hemoglobin, which is closely parallel to that of diminishing iron reserve in liver of average infant. Chart adapted from Mackay. It is possible to increase significantly the iron intake of the bottle-fed from birth by feeding Dextri-Maltose With Vitamin B in the milk formula. After the third month Pablum offers substantial amounts of iron for both breast- and bottle-fed babies.

## Reasons for Early Pablum Feedings

1. The iron stored in the infant's liver at birth is rapidly depleted during the first months of life. (Mackay,<sup>1</sup> Elvehjem.<sup>2</sup>)
2. During this period the infant's diet contains very little iron—1.44 mg. per day from the average bottle formulae of 20 ounces, or possibly 1.7 mg. per day from 28 ounces of breast milk. (Holt.<sup>3</sup>)

For these reasons, and also because of the low hemoglobin values so frequent among pregnant and nursing mothers (Coons,<sup>4</sup> Galloway<sup>5</sup>), the pediatric trend is constantly toward the addition of iron-containing foods at an earlier age, as early as the third or fourth month. (Blatt,<sup>6</sup> Glazier,<sup>7</sup> Lynch<sup>8</sup>.)

## The Choice of the Iron-Containing Food

1. Many foods reputed to be high in iron actually add very few milligrams to the diet because much of the iron is lost in cooking or because the amount fed is necessarily small or because the food has a high percentage of water. Strained spinach, for instance, contains only 1 to 1.4 mg. of iron per 100 gm. (Bridges.<sup>9</sup>)
2. To be effective, food iron should be in soluble form. Some foods fairly high in total iron are low in soluble iron. (Summerfeldt.<sup>10</sup>)
3. Pablum is high both in total iron (30 mg. per 100 gm.) and soluble iron (7.8 mg. per 100 gm.) and can be fed in significant amounts without digestive upsets as early as the third month, before the initial store of iron in the liver is depleted. Pablum also forms an iron-valuable addition to the diet of pregnant and nursing mothers.

Pablum (Mead's Cereal thoroughly cooked and dried) consists of wheatmeal, oatmeal, cornmeal, wheat embryo, brewers' yeast, alfalfa leaf, beef bone, iron salt and sodium chloride.

<sup>1-10</sup> Bibliography on request.

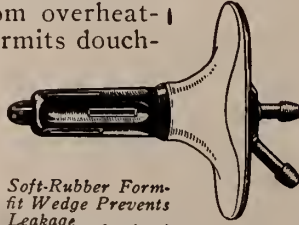
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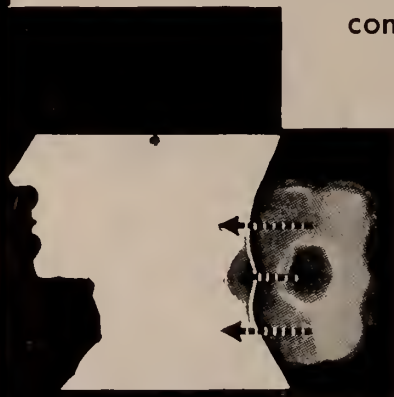
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### EPIDEMIC OF TRICHINOSIS IN MAINE

The first epidemic of trichinosis to be recorded in the state of Maine, so far as E. H. Drake, R. S. Hawkes and Mortimer Warren, Portland, Maine (*Journal A. M. A.*, Oct. 26, 1935), have been able to determine, is the largest epidemic to be reported in the United States. The dried larva powder used as antigen for the skin tests was furnished by Dr. Benjamin Schwartz of the U. S. Department of Agriculture. Dilution was made with physiologic solution of sodium chloride to which had been added 0.25 per cent of tricesol; 0.1 cc. of a 1:10,000 solution was used. Skin tests were applied to sixty-eight of the seventy-one individuals who had eaten the infected, improperly cooked meat and home-made pork sausage and the results were read in from five to ten minutes. All persons who had been definitely ill showed positive intradermal reactions. Two others were called questionably ill because of histories of sore throat and feverishness after eating the sausage. Both these patients were found to have subsequent eosinophilia but failed to react to the skin test on two occasions. They probably represent mild cases of trichinosis with negative skin reactions. There are twelve other persons who were not ill who displayed eosinophilia but did not show conclusive intradermal reactions. Five persons who were not clinically ill and did not show eosinophilia at the time of examination are included in the fifty-six positive cases because of marked skin reactions. Six hospital patients with various diseases were tested with the antigen as controls. Five failed to show an intradermal reaction; a child who was recovering from burns gave a strongly positive skin reaction both with the antigen and with diluting fluid. *Trichinellae* were found in the infected meat and in the striated muscles of the two fatal cases at necropsy. Twenty-five of the persons who had eaten meat from the diseased hog gave no history of illness but were found to have eosinophilia; twelve of this group reacted to the skin test and thirteen did not.

### STUDIES OF GALLBLADDER FUNCTION:

#### XI. COMPOSITION OF GALLBLADDER BILE IN PREGNANCY

Cecilia Riegel, I. S. Ravdin, Philip J. Morrison, Philadelphia, and Milton J. Potter, Buffalo (*Journal A. M. A.*, Oct. 26, 1935), obtained thirty-four specimens of gallbladder bile removed at term during cesarean section in patients with no previous history of gallbladder disease. Chemical analysis of this material forms the basis of their study. In every instance the gallbladder wall was reported as normal in appearance, although the viscus was as a rule found to be distended at operation. The bile was analyzed for chloride, calcium, bile salt and cholesterol by the methods reported in their earlier papers. The total phosphorus was determined by the method of the Youngburgs after digestion by the method of McCay. A few of the specimens showed a chloride concentration within the range of normal gallbladder bile, while in the remaining specimens the chloride concentration was similar to the mean concentration found in the bile from a diseased noncalculous

gallbladder. The calcium concentration varied from 5 to 31 milliequivalents per liter. The lowest concentration was approximately the same as that for hepatic bile, while the higher figures were similar to the concentrations of calcium in normal gallbladder bile. The mean concentration was similar to that found in patients with chronic noncalculous cholecystitis. Total phosphorus varied from 34 to 195 milliequivalents per liter. The bile salt concentration, expressed as sodium cholate, varied from 1,000 to 4,690 mg. per hundred cubic centimeters. In every instance the concentration of bile salt was below the concentration found in normal gallbladder bile, the highest concentration in the pregnancy group being about one-half the concentration that the authors have found to be present in normal gallbladder bile. The cholesterol concentrations varied from 130 to 1,000 mg. per hundred cubic centimeters. All but three were above 200, and eighteen of the thirty were above 300. Ten specimens were analyzed by a digitonin method for the presence of cholesterol esters, and in each instance no ester was present.

### DEMENTIA PARALYTICA AND TABES: STUDY WITH REFERENCE TO PRECOCIOUS DEVELOPMENT

In their study of 436 cases of dementia paralytica and 378 cases of tabes Udo J. Wile, Duncan, O. Poth and Burton F. Barney, Ann Arbor, Mich. (*Journal A. M. A.*, Oct. 26, 1935), found that the incidence of marked mental deterioration in the younger group of dementia paralytica patients was higher than in the older group and, furthermore, the degree of deterioration was much more marked. Thirty-five, or almost one-half of the patients in the younger group, showed varying degrees of deterioration at the first examination. This compares with but 32.2 per cent of the older group that were mentally deteriorated. These observations would not tend to corroborate those of Caldwell, who states that the prognosis in the younger dementia paralytica patients is better than in the older ones. The mental changes noted particularly in the younger group were the early onset of dysarthria, disorientation, euphoria and at times irritability. Factors that affect the neuropsychiatric condition of the individual, such as accidents and economic losses, appeared to precipitate the onset of symptoms. There was no essential difference noted in the severity of tabes between the younger and older groups; i. e., age does not seem to be a factor in the severity of the disease. Dementia paralytica occurred more frequently in females than did tabes. Of four patients in whom the dementia paralytica syndrome occurred before the twentieth year, all were women. Occupation and intellectual background did not play an important part in the occurrence of dementia paralytica and tabes. Tabes occurred more frequently than dementia paralytica in the foreign born. Precocity of onset was found more frequently in dementia paralytica than in tabes. The absence or inadequacy of treatment was a predominant factor in the precocious development of both dementia paralytica and tabes.

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### MENSTRUAL EDEMA: REPORT OF CASE CONTROLLED BY EMMENIN BUT NOT BY THEEOL OR THEELIN

Arthur J. Atkinson and Andrew C. Ivy, Chicago (*Journal A. M. A.*, Feb. 15, 1936), observed a patient with pronounced menstrual edema of long standing in which certain blood chemical studies have been made and the condition prevented by the administration of emmenin (Collip) but not by theeol or theelin. The study has extended over a period of more than one year. The administration of emmenin (12 cc. daily, 60 day oral units-Collip) in the first patient resulted in a complete disappearance of the edema, including that which persisted between menstrual periods. When the emmenin was withdrawn, the edema reappeared with the next menstrual cycle. While the patient was taking emmenin there was no significant change in the basal metabolic rate ( $-17.5$ ) and the menstrual headaches did not occur. A significant change in the blood lipids was not observed during the period of study. Two other patients with a similar history of premenstrual edema have been given emmenin with subsidence of the swelling.

### EFFECT OF EPHEDRINE ON EMPTYING TIME OF HUMAN STOMACH

Edward J. Van Liere, Donald H. Lough and Clark K. Sleeth, Morgantown, W. Va. (*Journal A. M. A.*, Feb. 15, 1936), found that under carefully controlled conditions ephedrine sulfate in therapeutic doses, 1 grain (0.065 Gm.), prolonged the emptying time of the stomach in six healthy young male subjects. In the case of two individuals, gastric evacuation was prolonged over 118 per cent. In no case was the prolongation less than 72.8 per cent. The average prolongation for the six individuals was 91.66 per cent. In view of the fact that ephedrine is so widely used in more or less chronic conditions such as asthma, hypotensive states and hay fever, the authors feel that the results reported in this paper are of interest to clinical medicine. The fact that ephedrine has such a marked effect on gastric motility makes it not unreasonable to suppose that ephedrine could cause a certain amount of stasis in the small and large intestine. The clinician should pay considerable attention to the diet as well as to the elimination in patients who are receiving ephedrine regularly.



(Continued from page 26)

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### REDUCTION OF DIPHTHERIA FOLLOWING THREE DOSES OF TOXOID

N. E. McKinnon and Mary A. Ross, Toronto, Ont. (*Journal A. M. A.*, Oct. 26, 1935), state that in a previous publication covering the period 1927-1930 it was shown that when the corrected rates of diphtheria obtaining in the controls (schoolmates) were applied to 16,829 children given three doses of toxoid in Toronto public schools, the expected cases numbered 222. There were actually 23 cases, a reduction of 90 per cent. There were no deaths in the twenty-three cases. Later observations on this group and on 29,029 additional children given three doses of toxoid subsequent to 1929-1930 they now report. For the whole period 1927-1932, instead of 460 cases, as estimated by applying the rates in controls, there were actually forty cases, a reduction of 91 per cent. In each year the reduction approximated this figure. To date no death from diphtheria has occurred in any of the 46,000 children given three doses of toxoid. In dividing the data so as to follow the reduction of diphtheria in each year subsequent to immunization, there is some evidence that the reduction is greatest and therefore immunity greatest in the year of immunization, that in subsequent years there is a slight decline, but that immunity remains at a very high level, from 80 to 90 per cent, for at least four or five years. The decline in diphtheria in the nonimmunized as well as immunized vitiated comparisons of later data. Diphtheria morbidity rates in Toronto had shown no definite decline over a period of thirty years. In 1926 and 1927 the mortality rates, quite typical of that period, were 16.2 and 20 per hundred thousand. Following the progress of immunization, diphtheria has fallen so that in 1934, in a city of 630,000 population, there were but eighteen cases and for a period of fifteen months there was not one death. In 4,516 swabs examined in 1934 from suspected cases, carriers and contacts, only twenty-eight, or 0.6 per cent, were positive. This change in diphtheria in

Toronto suggests that reduction of cases in immunized children reduces the cases in the nonimmunized and that the control of cases controls also the infecting organism or its spread. Since the authors' paper was written, a death occurred from diphtheria in a child 6½ years of age, who was given three doses of toxoid at 1 year of age.

### DEVELOPMENT OF THERAPEUTIC USE OF FORCED PERIVASCULAR (SPINAL) DRAINAGE

George M. Retan, Syracuse, N. Y. (*Journal A. M. A.*, Oct. 26, 1935), points out that forced perivascular drainage is a powerful therapeutic agent. Since it allows of considerable variation in procedure, it is still in an experimental stage of development. Before its value can be known in the treatment of various diseases in which it may be indicated, statistical evidence is necessary. In his discussion of the various factors involved, he believes that future research may alter some of the present conceptions. From his present experience he believes that forced perivascular drainage will be of use in the following infections of the central nervous system: Acute poliomyelitis, acute and chronic encephalitis, chorea, syphilitic meningitis and tabes dorsalis. While he is not in a position at the present time to advise the exact amount of hypotonic solution necessary in an individual case, 1 liter of hypotonic solution cannot be expected to be effective. The treatment should not be used until the physician has thoroughly acquainted himself with the subject. Perivascular drainage is a safe procedure and the only danger is cerebellar herniation, which can be prevented and controlled. If it can be shown that the hydration factor does not interfere with the therapeutic result, and if it can be shown that the method can be used with safety in the treatment of human beings, it will be an agent of the greatest value, since it will contribute to the comfort and safety of the patient.



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